BLM LIBRARY
88068456

US Telecom, Inc.

Fiber Optic Cable
Right-of-Way Plan of Development

Prepared for
USDI Bureau of Land Management
STATE OF WYOMING

MAY 30, 1986

HD
108.6
.W8
F53
1986

2800FI

#904411378

ID 88068456

HD
108.6
.W8
F53
1986

US TELECOM, INC.

FIBER OPTIC CABLE

RIGHT-OF-WAY PLAN OF DEVELOPMENT

Prepared for

U.S.D.I. BUREAU OF LAND MANAGEMENT

STATE OF WYOMING

Prepared by

US TELECOM, INC.

and

BEAK CONSULTANTS INCORPORATED

MAY 30, 1986
D3122

TABLE OF CONTENTS

		Page
1.0	FACILITY PURPOSE AND NEED	1
1.1	PROJECT DESCRIPTION	1
1.2	ALTERNATIVES CONSIDERED	2
2.0	FACILITY DESIGN FACTORS	3
2.1	GENERAL	3
2.2	SPECIFICATIONS	4
2.2.1	Cable	4
2.2.2	Repeater Stations	4
2.2.3	Generator Buildings and Propane Tanks	4
2.2.4	Powerlines	6
2.2.5	Markers	6
2.2.6	Buried Conduit	6
2.2.7	Bridge Attachments	8
2.2.8	Tunnels	8
2.2.9	Maintenance	8
2.3	CONSTRUCTION TECHNIQUES AND EQUIPMENT	9
2.3.1	Right-of-Way Access	9
2.3.2	Schedule	9
2.3.3	Work Force	10
2.3.4	Construction Staking	12
2.3.5	Construction Conferences	12
2.3.6	Fencing, Gates and Livestock	12
2.3.7	Repeater Stations and Associated Buildings	12
2.3.8	Clearing	13
2.3.9	Boring	13
2.3.10	Trenching/Rock Sawing	13
2.3.11	Plowing/Cable Placement	14
2.3.12	Backfilling	15
2.3.13	Ditch and Stream Crossings	15
2.3.14	Wetland Areas	20
2.4	CONTINGENCY PLANNING	20
2.4.1	Local US Telecom, Inc. Representative	22
2.4.2	Federal Authorized Officer(s)	22
2.4.3	Procedures for Amending the Plan of Development	23
3.0	ADDITIONAL COMPONENTS	24
3.1	EXISTING COMPONENTS	24
3.2	FUTURE COMPONENTS	24

		Page
4.0	GOVERNMENTAL AGENCY INVOLVEMENT	25
4.1	FEDERAL, STATE AND LOCAL	25
4.2	REQUIRED AUTHORIZING ACTIONS	26
5.0	RIGHT-OF-WAY LOCATION	27
5.1	LEGAL DESCRIPTION	27
5.2	MAPS	27
6.0	RESOURCE VALUES AND ENVIRONMENTAL CONCERNS	30
6.1	CONSISTENCY WITH EXISTING LAND USE PLANNING	30
6.2	RESOURCES	30
6.2.1	Mineral and Energy Resources	30
6.2.2	Cultural and Paleontological Resources	31
6.2.3	Soils	32
6.2.4	Water Resources	33
6.2 5	Vegetation	33
6.2.6	Wildlife and Threatened and Endangered Species	33
6.2.7	Visual Resources	35
6.2.8	Socioeconomic Concerns	36
7.0	STABILIZATION AND REHABILITATION	37
7.1	SOILS REPLACEMENT AND STABILIZATION	37
7.2	DISPOSAL OF TREES, STUMPS AND BRUSH CUT ON THE RIGHT-OF-WAY	37
7.3	SEEDING SPECIFICATIONS	38
a)	Seed Mixture	
b)	Rate of Seed Application	
c)	Method of Seed Application	
d)	Seeding Schedule	
e)	Use of Fertilizer	
8.0	OPERATION AND MAINTENANCE OF THE FACILITY	40
8.1	INSPECTION AND MAINTENANCE	40
8.2	LONG-TERM ACCESS TO AND ALONG THE RIGHT-OF-WAY	40
9.0	TERMINATION AND RESTORATION	41
10.0	DRAWINGS	42

1.0 FACILITY PURPOSE AND NEED

The applicant, US Telecom, Inc., is engineering and constructing a nationwide system of fiber optic telecommunication lines that will ultimately provide alternative long-distance services to subscribers in all major urban centers of the United States. Fiber optics have two major advantages over other communication systems: a) they provide a higher quality of sound and digital data transmission than conventional systems; and b) they are capable of transmitting much more information per cable than copper.

The purpose of this project is to construct one segment of a major cable network link between Cheyenne, Wyoming and Reno Junction, California.

1.1 PROJECT DESCRIPTION

US Telecom, Inc. has applied for a right-of-way grant pursuant to Title V of the Federal Land Policy Management Act of 1976 to bury the fiber optic cable within the existing Union Pacific Railroad right-of-way. A total of 405 miles of cable will be buried in Wyoming and there will be 18 repeater stations located one every 20 to 23 miles along the right-of-way within the state (4 on federal land, 1 on state land and 13 on private property). The cable will follow the Union Pacific Railroad right-of-way across the southern portion of the state, paralleling Interstate 80 or State Route 287 most of the way.

Approximately 340 miles of cable will be buried with a cable plow. The remaining cable will be placed in back-hoe trenches, rock cuts or hand-dug trenches. Construction is scheduled to begin in May 1986 and to end by December 30, 1986.

1.2 ALTERNATIVES CONSIDERED

US Telecom proposes to place the fiber optic cable in existing railroad rights-of-way wherever possible in order to simplify easement acquisition and minimize environmental impacts. The proposed Union Pacific railroad corridor is the only feasible railroad right-of-way across southern Wyoming. No other routes were considered.

2.0 FACILITY DESIGN FACTORS

2.1 GENERAL

Major project features will include 405 miles of buried fiber optic cable, 18 concrete, above-ground repeater stations located at 20 to 23 mile intervals, and 18 new overhead powerlines ranging in length from 45 ft. to 8.5 miles. The cable will be buried in soil at a minimum depth of 42 in., and as deep as 72 in. under streams or ditches. Placement in solid bedrock may be shallower (minimum 18 in.) depending on the amount of topsoil. Aside from routine periodic inspection and maintenance visits by US Telecom personnel or their contractors, the fiber optic cable will be an unmanned operation.

The BLM will issue a 10-ft. permanent right-of-way and a temporary use permit for an additional 10-ft construction strip.

2.2 SPECIFICATIONS

2.2.1 Cable

The fiber optic cable is 0.50 inches in diameter and outwardly resembles a traditional copper-core telephone cable. The glass fibers are encased in a flexible steel sheath covered with a water-proof plastic coating. Once in the ground, it will be inert, emitting no electrical current, sound or chemical.

2.2.2 Repeater Stations

Repeater stations are pre-cast concrete and rock structures which measure 8.5 ft. x 12 ft. x 8 ft. tall (Section 10.0). They will be set on crushed rock fill to raise them 18 in. to 30 in. above grade and founded on concrete piers that will extend below the frost line. The four repeater stations located on federal land will require additional rights-of-way 20 ft. wide and 40 ft. long adjacent to the cable right-of-way. Two of these above-ground facilities will be painted ("Sand Beige (5Y 6/3)" of the Munsell Soil Color Chart) to comply with Visual Resource Management classification standards. The locations of all repeater stations are provided in Table 1.

2.2.3 Generator Buildings and Propane Tanks

None of the repeater stations along the right-of-way in Wyoming will have associated generator buildings or propane tanks.

Table 1. Repeater station locations in the state of Wyoming.

Repeater Number	Cable Mile Post	Section	Township	Range	County	Land Ownership
WY11	530.00	13	13N	70W	Laramie	Private
WY12	550.88	5	13N	72W	Albany	Private
WY13	573.35	29	17N	73W	Albany	Private
WY14	595.91	29	20N	75W	Albany	Private
WY15	619.00	14	22N	78W	Carbon	Private
WY16	641.75	16	22N	81W	Carbon	Private
WY17	662.20	27	21N	84W	Carbon	Private
WY18	685.00	24	21N	88W	Carbon	BLM
WY19	707.54	8	20N	91W	Sweetwater	BLM
WY20	729.75	1	19N	95W	Sweetwater	Private
WY21	752.20	30	19N	98W	Sweetwater	BLM
WY22	774.75	3	19N	101W	Sweetwater	Private
WY23	797.00	22	19N	104W	Sweetwater	BLM
WY24	817.50	22	18N	107W	Sweetwater	Private
WY25	839.34	16	19N	110W	Sweetwater	State
WY26	861.58	13	18N	114W	Uinta	Private
WY27	883.84	31	17N	116W	Uinta	Private
WY28	904.75	23	14N	119W	Uinta	Private

2.2.4 Powerlines

All repeater stations in Wyoming will have electrical power needs which will be met by new overhead powerlines. New powerlines will vary in length from 45 ft. to 8.5 miles. Voltage will vary with local systems, but will average 7.2 kV. Construction will utilize single wooden poles (Section 10.0) and will be designed to be safe for perching raptors in accordance with Suggested Practices for Raptor Protection on Powerlines, Raptor Research Foundation, 1981. The location and lengths of new transmission lines to be built for this project in Wyoming are listed in Table 2. Those lines located on BLM land will be permitted under separate right-of-way grants to be obtained by respective power companies. No further consideration is given to powerlines in this document.

2.2.5 Markers

Stake-mounted markers will be placed along the cable alignment at 1000-ft. intervals, as well as at route changes, pipeline crossings, bore locations and bridge crossings. Each marker will have an emergency telephone number and cable location codes showing the exact position and depth of the cable. A typical drawing of a cable marker appears in Section 10.0.

2.2.6 Buried Conduit

Most of the cable will be buried directly in the ground, but several short segments will be placed in 3-in. conduits. Conduit will be used where the cable crosses pipelines, roads and the railroad and will be installed by punching or boring.

Table 2. Location and lengths of new transmission lines to be built in Wyoming.

Repeater Station	Distance to Nearest Power Source	Direction of Nearest Power Source	County	Power Companies*
WY 11	1 mi.	East	Laramie	REC
WY 12	2600 ft.	Southeast	Albany	CCP
WY 13	66 ft.	Northwest	Albany	CCP
WY 14	450 ft.	North	Albany	CCP
WY 15	400 ft.	North	Carbon	CCP
WY 16	1370 ft.	East	Carbon	PP&L
WY 17	98 ft.	East	Carbon	CCP
WY 18	500 ft.	Northwest	Carbon	PP&L
WY 19	1.5 mi.	Southwest	Sweetwater	PP&L
WY 20	2250 ft.	East	Sweetwater	PP&L
WY 21	3 mi.	West	Sweetwater	PP&L
WY 22	2.5 mi.	North	Sweetwater	PP&L
WY 23	2650 ft.	North	Sweetwater	PP&L
WY 24	45 ft.	North	Sweetwater	PP&L
WY 25	1100 ft.	East	Sweetwater	PP&L
WY 26	8.5 mi.	East	Uinta	BV
WY 27	8 mi.	East	Uinta	BV
WY 28	5900 ft.	East	Uinta	UP&L

* REC - Rural Electric Company
CCP - Carbon County Power
PP&L - Pacific Power & Light
BV - Bridger Valley Rural Electric Association
UP&L - Utah Power & Light

2.2.7 Bridge Attachments

The cable will be attached to all bridges in 3-in. diameter galvanized iron conduit. The conduit will be attached to the bridge stringers or other support members below the traveled surface. Conduit will extend the full length of all bridges, and will continue an additional 10 to 20 ft. beyond the wing walls until the cable is again covered by at least 42 in. of earth.

2.2.8 Tunnels

The fiber optic cable will pass through railroad tunnels in a conduit bolted to the tunnel walls.

2.2.9 Maintenance

Once completed, the system will be unmanned and will require very little maintenance. The cable itself will require no regular maintenance, and it will be re-excavated only in the event of a break or other physical damage to the sheathing or optical fibers. This is expected to be a rare occurrence. The right-of-way will require no maintenance other than what it is already receiving from Union Pacific. There will be no additional vegetation control or right-of-way management practiced specifically for the cable. The repeater stations, which will house signal regeneration equipment, will be visited weekly by a US Telecom employee to inspect for signs of vandalism and equipment failure. Access to the repeaters will be gained via existing railroad access roads and public roads only. No special provisions will be required for maintenance access. The powerlines, which will serve the repeaters, will be maintained by the respective electric utilities. They will receive the same treatment given other low-voltage powerlines in the area.

2.3 CONSTRUCTION TECHNIQUES AND EQUIPMENT

2.3.1 Right-of-Way Access

All equipment and materials will be transported to the right-of-way on existing public roads, railroad service roads and/or the railroad itself. No new roads will be constructed for purposes relating to this project and no existing roads will require upgrading.

2.3.2 Schedule

The first phase of construction will be the civil work, which will involve the placement of conduit beneath road and railroad crossings. This work will begin at Frewen, Wyoming, with crews working east to Cheyenne and west to the Wyoming/Utah border. At the same time, the bridge attachment crews will begin work at Laramie, Wyoming proceeding west to the Wyoming/Utah border. Approximate starting date for this phase will be May 15, 1986.

In the next phase, the ripper plow crews will begin at Frewen, Wyoming with one crew working west to the Wyoming/Utah border and one crew working east to Cheyenne. The approximate starting date of this phase will be June 1, 1986. The next phase, the cable plowing operation, will begin one or two weeks after the ripper plow phase. The cable plowing phase will also begin at Frewen, Wyoming and proceed both east and west from there. As the cable is being plowed, equipment will follow the plow to do the restoration work to the right-of-way, and a crew will place the cable location marker signs. The approximate starting date of this third phase will be June 5, 1986.

The exact timing of all phases will depend on the date of issuance of the grant, weather conditions and other factors. A final schedule which takes these factors into account will be provided to the BLM at the pre-construction meeting. It is expected that the fiber optic cable will be installed along the entire route by August 30, 1986, and that right-of-way restoration and re-seeding will be complete by November 1986.

2.3.3 Work Force

Construction crew sizes and types of vehicles will vary depending on the phase of construction and requirements at the construction site. At the peak of construction activity, about 50 individuals will be involved in construction, in addition to eight US Telecom personnel. The following table lists the typical number of individuals and types of vehicles involved in different construction activities.

Operation	Personnel	Vehicles/Equipment
Bore crew	3-4	Back-hoe, small dozer, 1 ton flat bed truck, tampers, air compressor, 2 pickups, boring or pushing machine
Back-hoe trench	4-6	Back-hoe(s), small dozer, 2-3 pickups, 1 1/2 ton pipe truck, compressors
Machine trench	4-6	Machine trencher(s), back-hoe, small dozer, 1 1/2 ton pipe truck, 2-3 pick-ups, air compressors
Rock saw	2-3	Rock saw, air compressors, jack hammers, 2-3 pickups, back-hoe, small dozer
Ripper plow	2-3	Ripper plow mounted on a dozer, 2 pickups, occasionally a large dozer
Cable plow	6-8	Cable plow mounted on a dozer, small dozer, back-hoe

Operation	Personnel	Vehicles/Equipment
Bridge attachments	3-4	Back-hoe, air compressor, 2-3 pickups, 1 1/2 ton pipe truck, welding truck
Cable placement in conduit	4-6	Back-hoe, winch truck, cable truck, 2-3 pickups, cable dolly
Splice pits	2	2 pickups
Sign placement	2-3	1-2 pickups, air compressor
Exposing gas/oil pipelines	2-3	Back-hoe, small dozer, 1-2 pickups
Re-seeding	2-3	1-2 pickups

Safety requirements for construction personnel working on the right-of-way have been specified in considerable detail in the contract entered into by US Telecom and Union Pacific Railroad. These requirements are attached to the Plan of Development as Appendix A. The requirements cover topics including worker conduct, sanitation, personal protective equipment, fire protection, use of vehicles, use of gas and compressed air equipment, operations involving manholes, sewers, excavation and trenching, cutting or trimming trees, and use of signals on the right-of-way.

Contractors will be responsible for taking necessary safety precautions to ensure that persons and property are protected from damage, injury or illness arising from construction of the project. Contractors will be required to comply with local, municipal, state and federal laws and regulations pertaining to health and safety.

All materials that are not a part of the completed project will be removed from the right-of-way. Portable sani-cans will be utilized at construction sites for human waste.

2.3.4 Construction Staking

The centerline of the cable route will be staked prior to construction.

2.3.5 Construction Conferences

Pre-construction meetings will take place between US Telecom, the BLM and the construction contractor(s) prior to the commencement of work in each BLM resource area. Once construction has begun, conferences will convene as requested by the BLM. No predetermined schedule will be outlined for meetings to occur during construction activities.

2.3.6 Fencing, Gates and Livestock

All potentially affected permit holders will be notified by US Telecom, at the request of individual Wyoming BLM resource area offices, prior to project construction. All fences, gates or other structures disturbed during construction will be replaced and/or returned to their original condition the same day. Downed fences will not be left unattended at any time. Previously authorized movements of sheep and cattle along and across the right-of-way will not be interrupted by cable laying activities.

2.3.7 Repeater Stations and Associated Buildings

Repeater stations will be located at 20-23 mile intervals along the entire fiber optic cable route (Appendix C). Stations will be pre-cast concrete and rock structures measuring 8.5 ft. x 12 ft. x 8 ft. tall. They will be set on concrete pads founded on concrete piers that extend below the frost line. Repeater stations will be hauled to the site on a 45-ft. trailer pulled by a large truck. A crane will be used to place them on the prepared foundations. Most stations

will be located adjacent to existing roads to facilitate access. Those located on federal land will require rights-of-way 20 ft. wide and 40 ft. long.

2.3.8 Clearing

Areas with dense brush will be cleared with a bulldozer blade prior to installation of the cable. The blade will be kept at 6 in. above ground level to avoid excessive stripping of topsoil. Trees and large shrubs that are too large to be crushed by a bulldozer will be removed. Slash will be disposed of by lopping and scattering it within the right-of-way.

2.3.9 Boring

Boring operations will be required to place the 3-in. galvanized iron conduits under railroad tracks, roadways and substructures such as gas pipes. A rotating bore machine or hydraulic pushing machine will be used, as appropriate. At the bore location it will be necessary to excavate a pit ranging from 4 ft. x 4 ft. x 6 ft. to 8 ft. x 8 ft. x 10 ft. on each side of the area to be bored. The pits will be excavated with a back-hoe and will meet Occupational Safety and Health Act (OSHA) standards. When the boring operation is complete, a small dozer or back-hoe will be used to backfill the pits to 95 percent compaction.

Boring pits will be dug by hand in small areas that are too close to railroad tracks to permit use of machinery, or where there are numerous substructures present.

2.3.10 Trenching/Rock Sawing

Three methods, trenching, rock sawing and plowing, will be employed to bury the fiber optic cable. Trenching will be required for placement of conduits

at the ends of bridges, in areas with loose rock, at stream and ditch crossings and in locations where substructures such as gas and telephone lines are present. Also, trenching will be employed in areas too narrow to accommodate a cable plow and for construction of splice pits. A back-hoe or machine trencher will be used to dig a lineal trench a minimum of 48 in. deep and no wider than 36 in., except for splice pits, which will be 6 ft. square. Dislodged earth will be used to backfill the trench either by means of a back-hoe or a small dozer. All trenches will be backfilled on the same day. The disturbed area will be compacted to 95 percent of its original volume to allow for future settlement. Construction of trenches will follow OSHA regulations.

A rock saw will be used in areas where bedrock prevents trenching with a back-hoe. Rock saws will be track mounted or rubber tire mounted. The rock saw will prepare a trench 4 to 6 in. wide and a minimum of 18 in. deep. Rock sawing will be done in advance of the cable laying operation. Conduit will be placed in the cuts and they will be backfilled with dislodged material the same day.

2.3.11 Plowing/Cable Placement

Most of the cable will be buried by means of the cable plow which can be used in most areas where the substrate is soil. The plowing operation will utilize two large bulldozers, the first of which pulls a ripping plow through the soil at a minimum of 42 in. creating a 4 to 6 in. slot in the soil. The ripper plow normally will produce an adequate slot in one pass through the right-of-way.

A second bulldozer will follow the ripping plow with the cable plow which places the cable into the 4 to 6 in. trench. In situations where the cable passes through a conduit, a winch mounted on a small flatbed truck will be used

to pull the cable through. A 6 ft. x 6 ft. splice pit will be required at all cable reel ends (approximately every 7 miles) to permit splicing the cable ends together and to accommodate a buried splice locator.

2.3.12 Backfilling

Backfilling of trenches will be accomplished with a back-hoe or small bulldozer, and will utilize soil and rocks that were displaced during the trenching operation. Burial of the cable will leave a small hump in the soil which is then compacted to 95 percent under the tires of a back-hoe or small dozer, or by dragging a wedge shaped drag behind the cable plow. Compaction will be assured in areas where the rock saw is used by one of several methods. In most cases, sufficient soil will be mixed in with backfilled material to fill the trench with a compact mass. Alternatively, a concrete slurry will be poured into the trench after conduit has been placed in it. Another method to be employed will utilize a soil additive such as Perma Soil, which acts as a hardening agent, but nonetheless permits percolation of water and supports vegetation. Section 10.0 shows typical cross sections of trenches in soil, rock, streams and ditches, identifying fill materials that will be used in each substrate.

2.3.13 Ditch and Stream Crossings

The cable will be trenched or plowed through 128 ditches, intermittent streams and small perennial streams with a combined width of less than 1 mile (Table 3). The minimum required depth for cable placement under a ditch or stream is 60 in., but may be as great as 72 in. Section 10.0 shows a typical cross section of a cable placement in a ditch or stream. US Telecom will conduit across all existing Union Pacific Railroad bridges unless otherwise directed by the Authorized Officer. Bridge attachments will require no instream work.

Table 3. Streams, creeks and rivers encountered by the US Telecom right-of-way.

County	Township, Range, Section			Length (ft.)	Name (if avail.)	State
Laramie	13N	67W	16	40	Clear Creek	Wyoming
"	13N	70W	8	10		"
Albany	13N	72W	5	20		"
"	13N	72W	6	10		"
"	14N	73W	23	10		"
"	14N	73W	23	10		"
"	14N	73W	11	10		"
"	14N	73W	11	10		"
"	14N	73W	2	15		"
"	15N	73W	22	10		"
"	18N	74W	26	40	Oasis Ditch	"
"	18N	74W	23	40	Oasis Ditch	"
"	18N	74W	10	80	Oasis Ditch	"
"	20N	75W	33	10	Rock Creek	"
"	20N	76W	10	25		"
"	20N	76W	9	35		"
"	20N	76W	9	55		"
"	20N	76W	6	10		"
"	20N	76W	6	10		"
"	21N	76W	31	15		"
"	21N	76W	30	10		"
"	21N	76W	18	10		"
"	21N	76W	18	10		"
"	22N	77W	34	10		"
Carbon	22N	77W	29	20		"
"	22N	77W	19	20		"
"	22N	78W	24	10		"
"	22N	78W	7	30		"
"	22N	79W	11	60	Sand Creek	"
"	22N	79W	6	30		"
"	22N	80W	1	5		"
"	22N	80W	5	15	Hi Allen Creek	"
"	22N	80W	5	15	Hi Allen Creek	"
"	22N	81W	14	20		"
"	22N	81W	14	35		"
"	22N	81W	14	35		"
"	22N	81W	14	25		"
"	22N	81W	15	20		"

Table 3. (Cont.)

County	Township, Range, Section			Length (ft.)	Name (if avail.)	State
Carbon	22N	81W	15	60	Big Ditch	Wyoming
"	22N	81W	20	15		"
"	22N	83W	35	10		"
"	22N	83W	35	50		"
"	21N	83W	5	25		"
"	21N	83W	5	25	St. Mary's Cr.	"
"	21N	83W	7	40	St. Mary's Cr.	"
"	21N	83W	7	20		"
"	21N	83W	7	35		"
"	21N	84W	24	15	St. Mary's Cr.	"
"	21N	84W	27	40	St. Mary's Cr.	"
"	21N	84W	27	55	St. Mary's Cr.	"
"	21N	84W	27	30		"
"	21N	84W	28	45	St. Mary's Cr.	"
"	21N	84W	28	15		"
"	21N	84W	28	30	St. Mary's Cr.	"
"	21N	84W	29	25	St. Mary's Cr.	"
"	21N	84W	19	15	St. Mary's Cr.	"
"	21N	84W	19	15	St. Mary's Cr.	"
"	21N	84W	19	15	St. Mary's Cr.	"
"	21N	84W	19	15	St. Mary's Cr.	"
"	21N	84W	19	15	St. Mary's Cr.	"
"	21N	84W	19	15	St. Mary's Cr.	"
"	21N	84W	19	15	St. Mary's Cr.	"
"	21N	84W	24	75	St. Mary's Cr.	"
"	21N	84W	23	10		"
"	21N	85W	22	80		"
"	21N	86W	19	40	Sugar Creek	"
"	21N	87W	19	10		"
"	21N	87W	19	10		"
"	21N	88W	25	25	Sugar Creek	"
"	21N	88W	25	25	Sugar Creek	"
"	21N	88W	28	30		"
"	21N	89W	24	15		"
"	21N	89W	31	30		"
"	21N	89W	32	10	Separation Cr.	"
Sweetwater	20N	90W	7	15	Fillmore Cr.	"
"	20N	90W	7	15	Fillmore Cr.	"
"	20N	91W	10	10		"
"	20N	91W	10	10		"
"	19N	95W	5	50		"
"	18N	99W	2	15	Patrick Draw	"
"	18N	99W	10	15	Bitter Creek	"
"	18N	99W	9	20		"
"	18N	99W	16	80	Bitter Creek	"
"	18N	100W	25	100	Bitter Creek	"
"	18N	100W	23	2500		"
"	18N	100W	22	2500		"
"	18N	100W	22	50	Bitter Creek	"

Table 3. (Cont.)

County	Township, Range, Section			Length (ft.)	Name (if avail.)	State
Sweetwater	18N	100W	16	50	Bitter Creek	Wyoming
"	19N	100W	32	90		"
"	19N	100W	29	200	Bitter Creek	"
"	19N	100W	19	90	Bitter Creek	"
"	19N	100W	19	100	Bitter Creek	"
"	19N	101W	14	40		"
"	19N	101W	11	50		"
"	19N	101W	3	10		"
"	20N	101W	34	40		"
"	20N	101W	27	20		"
"	20N	101W	30	15		"
"	20N	101W	19	15		"
"	20N	102W	23	10		"
"	19N	103W	10	120		"
"	19N	104W	22	25		"
"	18N	105W	3	10		"
"	18N	105W	7	10		"
"	18N	106W	21	70		"
"	18N	106W	20	50		"
"	18N	106W	19	75		"
"	18N	107W	16	15		"
"	18N	108W	12	40		"
"	18N	108W	8	20		"
"	18N	109W	1	50		"
"	18N	109W	1	20		"
"	19N	109W	34	10		"
"	19N	109W	34	20		"
"	19N	109W	34	10		"
"	19N	109W	28	10		"
"	19N	109W	28	10		"
"	19N	109W	20	175	Black's Fork River	"
"	19N	109W	19	400		"
"	19N	110W	13	50		"
"	19N	110W	15	10		"
"	19N	110W	17	65		"
"	19N	111W	13	300	Black's Fork River	"
"	19N	111W	21	100		"
"	18N	112W	2	50		"
"	18N	112W	3	50		"
"	18N	112W	3	50	Porter Hollow	"
Uinta	18N	112W	6	50		"
"	18N	113W	2	50		"
"	18N	113W	2	40		"
"	18N	113W	3	60		"
"	18N	113W	9/10	20		"

Table 3. (Cont.)

County	Township, Range, Section			Length (ft.)	Name (if avail.)	State
Uinta	18N	113W	8	200	Black's Fork River	Wyoming
"	18N	113W	18	35	Big Muddy Cr.	"
"	18N	114W	13	35	Big Muddy Cr.	"
"	18N	114W	14	30		"
"	18N	114W	20	50		"
"	18N	114W	19	40	Dry Wash	"
"	18N	114W	19	40	Dry Wash	"
"	18N	114W	31	134	Big Muddy Cr.	"
"	17N	115W	1	200	Big Muddy Cr.	"
"	17N	115W	1	50		"
"	17N	115W	2/11	950	Big Muddy Cr.	"
"	17N	115W	11	90		"
"	17N	115W	11	90	Big Muddy Cr.	"
"	17N	115W	11	65	Big Muddy Cr.	"
"	17N	115W	10	130	Big Muddy Cr.	"
"	17N	115W	10	35	Big Muddy Cr.	"
"	17N	115W	15	370	Big Muddy Cr.	"
"	17N	115W	15	100	Big Muddy Cr.	"
"	17N	115W	15	80	Big Muddy Cr.	"
"	17N	115W	21	20		"
"	17N	116W	26	40		"
"	17N	116W	29	30		"
"	16N	117W	10	40		"
"	15N	118W	17	40		"
"	15N	118W	25	20		"
"	15N	118W	34	10		"
"	14N	119W	13	20		"
"	14N	119W	22	10		"
"	14N	119W	16	40	Stowe Creek	"
"	14N	119W	16	10		"
"	14N	119W	8	30	Stowe Creek	"
"	15N	120W	22	75		"
"	15N	120W	22	20		"
"	15N	120W	27	10		"
"	15N	120W	21	10		"
"	15N	121W	25	35	Yellow Creek	"

All banks and stream beds will be immediately reformed to their original contours, stream bottom widths and channel gradients. Disturbed areas will be protected by rip-rapping and re-seeding. All stream beds with running water will be rip-rapped. Ephemeral or intermittent streams that have in-sized cut-banks along the cable path will be avoided. The BLM will identify all other stream considerations and will determine appropriate protection and rehabilitation measures included as an amendment to this Plan of Development.

2.3.14 Wetland Areas

Approximately 6 miles of cable will traverse wetlands and riparian areas, impacting a total of approximately 6 acres (Table 4). The Authorized Officer may designate additional wetland areas and appropriate mitigation measures to be amended to this Plan of Development. US Telecom's on-site representative will be supplied with a list of all wetland crossings. He will consult with the BLM Authorized Officer at least one week prior to work in any particular wetland area to determine the need for specialized construction techniques and revegetation measures. Additionally, US Telecom will utilize specialized wetlands equipment in all identified wetland areas and in those potentially identified by the Authorized Officer. The following construction methods will be used in all wetland areas:

- A 100 Percent Amphibious Personnel/Cargo Carrier (Section 10.0)
- A Ryans Plow (Section 10.0)
- Steel Matting

2.4 CONTINGENCY PLANNING

US Telecom shall designate a representative(s) who shall have the authority to act upon and to implement instructions from the Authorized Officer. US

Table 4. Wetland areas crossed by the US Telecom right-of-way.

County	Township, Range, Section			Length (ft.)	State
Laramie	13N	67W	17	600	Wyoming
"	13N	67W	18	65	"
"	13N	69W	15	470	"
"	13N	69W	15	265	"
Albany	15N	73W	9	480	"
"	15N	73W	5	130	"
"	16N	73W	20	1150	"
"	16N	73W	17	393	"
"	16N	73W	17	500	"
"	16N	73W	17	1300	"
"	18N	74W	10	400	"
"	18N	74W	10	750	"
"	18N	74W	10	3200	"
"	18N	74W	3	1100	"
"	19N	75W	11	3500	"
"	19N	75W	2	375	"
"	20N	70W	13	100	"
"	20N	70W	14	700	"
"	21N	76W	30	180	"
"	21N	76W	18	5500	"
Carbon	22N	78W	24	115	"
"	22N	78W	24	20	"
"	22N	78W	24	50	"
"	22N	78W	14	307	"
"	22N	78W	15	400	"
"	22N	78W	10	35	"
"	22N	83W	35	15	"
"	21N	84W	28	100	"
"	21N	84W	19	530	"
Sweetwater	20N	93W	19	25	"
"	19N	101W	24	150	"
"	19N	110W	13	60	"
Uinta	18N	114W	15	180	"
"	17N	115W	1	30	"
"	17N	115W	21	1200	"
"	15N	120W	22	1400	"
"	15N	120W	26	90	"
"	15N	121W	25	200	"
"	15N	121W	26	200	"

Telecom's representative shall be available for communication with the Authorized Officer within a reasonable time when construction or other surface disturbing activities are underway.

2.4.1 Local US Telecom, Inc. Representative

US Telecom's Wyoming representative is Mr. Mike Cheatham, Project Manager, Western Hills Trailer Park, S24, Rawlins, Wyoming, 82301. Telephone: (307) 324-3909.

2.4.2 Federal Authorized Officer(s)

Rock Springs:

- Authorized Officer (307) 382-5350:

  Mr. Don Sweep, District Manager or
  Mr. Bill Jordan, District Realty Specialist

- Authorized Officer Representatives:

  Kemmerer Resource Area (307) 877-3933:

  Mr. Chuck Williams, Compliance Specialist
  Ms. Renee Snyder, Compliance Specialist
  Mr. Dave Vlcek, Archaeologist
  Mr. Chester Novak, Soil Scientist
  Mr. Bruce Baker, Wildlife Biologist

  Green River Resource Area (307) 362-6422 or 362-7350:

  Ms. Carmel Swidler, Archaeologist
  Mr. Dick Kail, Compliance Specialist

Rawlins:

- Authorized Officer(307) 324-7171: Mr. Richard Bastin, District Manager

- Authorized Officer Representative:

  Rawlins District Office (307) 324-7171:

  Mr. Larry Jackson, Realty Specialist
  Mr. Mike Bies, Archaeologist

Divide Resource Area (307) 324-4841:

Ms. Penny Smalley, Realty Specialist
Ms. Marilyn Nickerson, Realty Specialist
Mr. Walter George, Compliance Specialist
Mr. Robert Rood, Compliance Specialist

2.4.3 Procedures for Amending the Plan of Development

The following procedures have been developed to document any deviations from this Plan of Development.

A master Plan of Development (POD) will be maintained by US Telecom, Inc. at the construction office. The master POD will have a list of all revisions as well as the revised sheets. Any deviations from the POD will be documented in a revision. Revisions will be submitted to the Authorized Officer for approval. Upon written approval, copies of the revision will be distributed to holders of the POD as designated by US Telecom, Inc. and the Authorized Officer.

3.0 ADDITIONAL COMPONENTS

3.1 EXISTING COMPONENTS

There are no existing facilities along the right-of-way, public or private, which are considered components of this project.

3.2 FUTURE COMPONENTS

After project construction is complete (including installation of 18 repeater station facilities in Wyoming), there will be no further components built within the project right-of-way.

4.0 GOVERNMENTAL AGENCY INVOLVEMENT

4.1 FEDERAL, STATE AND LOCAL

This project will cross the Rock Springs and Rawlins BLM districts in Wyoming, and will involve the Kemmerer, Green River, Divide and Medicine Bow Resource Areas within these districts. Officers and resource specialists in all locations have been consulted. The project lead officer for the state of Wyoming is Mr. Bill Jordan, District Realty Specialist, Rock Springs. The district lead officers in Rawlins are Ms. Penelope Smalley, Resource Area Realty Specialist and Mr. Larry Jackson, District Realty Specialist.

Interagency coordination for all aspects of the project including NEPA and construction compliance is under the lead direction of the Salt Lake District office, Salt Lake City, Utah. The project manager is Mr. Dan Naegle, District Realty Specialist, and he is assisted by Ms. Terri Yeckley, Environmental Coordinator. The project will not involve crossing other federal lands in Wyoming, therefore, no other federal agency is involved in project coordination efforts or consultation.

The following agencies have been contacted for information relating to this right-of-way project:

Wyoming Department of Environmental Quality

Wyoming State Historic Preservation Office

The Nature Conservancy, Rocky Mountain Heritage Task Force

USDA Soil Conservation Service (Casper, Wyoming)

USDI Fish and Wildlife Service (Region 6)

The prepared Environmental Assessment has been presented to Mr. Warren White, Governor's State Clearinghouse Coordinator, Cheyenne, Wyoming, for review and consultation.

4.2 REQUIRED AUTHORIZING ACTIONS

Authorizing actions including state, county, city and other required permits needed by US Telecom to construct and operate the fiber optic cable within the right-of-way are listed in Appendix B.

5.0 RIGHT-OF-WAY LOCATION

5.1 LEGAL DESCRIPTION

The cable right-of-way will lie entirely within the Union Pacific Railroad right-of-way in Wyoming. A list of all sections crossed by the right-of-way is provided in Table 5. A more detailed description is provided in the project right-of-way grant.

5.2 MAPS

Construction drawings of adequate detail for locating the right-of-way and related facilities in Wyoming are provided in Appendix C.

Table 5. Right-of-way legal description for the state of Wyoming.

Section(s)	Township	Range	County
31	T14N	R66W	Laramie
6	T13N	R66W	Laramie
1, 2, 10, 11, 15, 16, 17, 18, 19	T13N	R67W	Laramie
14, 15, 16, 17, 18, 23, 24	T13N	R68W	Laramie
13, 14, 15, 16, 17, 18	T13N	R69W	Laramie
6, 7, 8, 9, 13, 14, 15, 16	T13N	R70W	Laramie/Albany
1, 2, 3, 9, 10, 15, 16, 17, 19, 20	T13N	R71W	Albany
6, 7, 8, 17, 20, 21, 22, 23, 24	T13N	R72W	Albany
30, 31	T14N	R72W	Albany
2, 11, 14, 23, 25, 26	T14N	R73W	Albany
4, 5, 9, 15, 16, 22, 26, 27, 34, 35	T15N	R73W	Albany
5, 8, 17, 20, 29, 32	T16N	R73W	Albany
6, 7, 18, 19, 29, 30, 32	T17N	R73W	Albany
1	T17N	R74W	Albany
3, 12, 14, 15, 23, 25, 26, 36	T18N	R74W	Albany
18, 19, 20, 28, 29, 33, 34	T19N	R74W	Albany
2, 11, 12, 13	T19N	R75W	Albany
19, 28, 29, 30, 33, 34	T20N	R75W	Albany
6, 7, 8, 9, 10, 11, 13, 14, 24	T20N	R76W	Albany
6, 7, 18, 19, 30, 31	T21N	R76W	Albany
1, 2	T21N	R77W	Albany/Carbon
19, 28, 29, 30, 33, 34, 35	T22N	R77W	Albany/Carbon
7, 8, 9, 10, 13, 14, 15, 24	T22N	R78W	Carbon
4, 5, 6, 9, 10, 11, 12	T22N	R79W	Carbon
1, 2, 3, 4, 5, 6	T22N	R80W	Carbon
1, 11, 12, 14, 15, 16, 17, 19, 20	T22N	R81W	Carbon
23, 24, 26, 27, 31, 32, 33, 34	T22N	R82W	Carbon
32, 33, 34, 35, 36,	T22N	R83W	Carbon
5, 6, 7, 18, 19	T21N	R83W	Carbon
19, 24, 25, 26, 27, 28, 29, 30	T21N	R84W	Carbon
19, 20, 21, 22, 23, 24	T21N	R85W	Carbon
19, 20, 21, 21, 22, 23, 24	T21N	R86W	Carbon
14, 15, 16, 17, 19, 20, 23, 24	T21N	R87W	Carbon
19, 20, 21, 24, 25, 26, 27, 28	T21N	R88W	Carbon
23, 24, 26, 27, 28, 31, 32, 33	T21N	R89W	Carbon
36	T21N	R90W	Carbon
3, 4, 5, 6, 7	T20N	R90W	Carbon
7, 8, 9, 10, 11, 12	T20N	R91W	Carbon
12, 13, 14, 15, 16, 20, 21, 22	T20N	R92W	Carbon
14, 15, 16, 17, 19, 20, 23, 24	T20N	R93W	Carbon
24, 25, 26, 33, 34, 35	T20N	R94W	Sweetwater
4, 5, 6	T19N	R94W	Sweetwater
1, 2, 3, 4, 5, 6, 7	T19N	R95W	Sweetwater
7, 8, 9, 10, 11, 12, 18	T19N	R96W	Sweetwater
13, 14, 15, 16, 17, 19, 20	T19N	R97W	Sweetwater
23, 24, 26, 27, 28, 29, 30, 31	T19N	R98W	Sweetwater
36	T19N	R99W	Sweetwater
1, 2, 9, 10, 11, 16, 17, 19, 20, 30	T18N	R99W	Sweetwater

Table 5. (Cont.)

Section(s)	Township	Range	County
4, 5, 9, 15, 16, 22, 23, 25, 26	T18N	R100W	Sweetwater (Cheyenne)
19, 29, 30, 32	T19N	R100W	Sweetwater
2, 3, 11, 13, 14, 24	T19N	R101W	Sweetwater
27, 28, 29, 30, 34, 35	T20N	R101W	Sweetwater
23, 24, 25, 26, 27, 28, 31, 32, 33	T20N	R102W	Sweetwater
36	T20N	R103W	Sweetwater
1, 2, 8, 9, 16, 17, 18	T19N	R103W	Sweetwater
13, 21, 22, 23, 24, 28, 29, 30	T19N	R104W	Sweetwater
25, 26, 35	T19N	R105W	Sweetwater
2, 3, 4, 5, 6, 7	T18N	R105W	Sweetwater
12, 13, 14, 15, 19, 20, 21, 22	T18N	R106W	Sweetwater
7, 8, 9, 16, 17, 21, 22, 23, 24, 25	T18N	R107W	Sweetwater
7, 8, 9, 10, 11, 12	T18N	R108W	Sweetwater
1, 2, 12	T18N	R109W	Sweetwater
19, 20, 21, 27, 28, 34	T19N	R109W	Sweetwater
13, 14, 15, 16, 17, 18, 19	T19N	R110W	Sweetwater
13, 21, 22, 23, 24, 28, 29, 31, 32	T19N	R111W	Sweetwater
27, 28, 29, 30, 34, 35	T20N	R101W	Sweetwater
23, 24, 25, 26, 27, 28, 31, 32, 33	T20N	R102W	Sweetwater
36	T20N	R103W	Sweetwater
1, 2, 9, 10, 16, 17, 18	T19N	R103W	Sweetwater
13, 21, 22, 23, 24, 28, 29, 30	T19N	R104W	Sweetwater
25, 26, 35	T19N	R105W	Sweetwater
2, 3, 4, 5, 7	T18N	R105W	Sweetwater
12, 14, 15, 19, 20, 21, 22	T18N	R106W	Sweetwater
7, 8, 9, 16, 17, 21, 22, 23, 24, 25	T18N	R107W	Sweetwater
7, 8, 9, 10, 11, 12	T18N	R108W	Sweetwater
1, 2, 3, 12	T18N	R109W	Sweetwater
19, 20, 21, 27, 28, 34	T19N	R109W	Sweetwater
13, 14, 15, 16, 17, 18, 19	T19N	R110W	Sweetwater
21, 22, 23, 24, 28, 29, 31, 32	T19N	R111W	Sweetwater
36	T19N	R112W	Sweetwater/Lincoln
1, 2, 3, 4, 5, 6	T18N	R112W	Sweetwater/Uinta
1, 2, 3, 8, 9, 10, 17, 18	T18N	R113W	Uinta
13, 14, 15, 16, 17, 19, 20, 30, 31	T18N	R114W	Uinta
36	T18N	R115W	Uinta
1, 2, 10, 11, 15, 16, 20, 21, 29, 30	T17N	R115W	Uinta
25, 26, 27, 28, 29, 31, 32	T17N	R116W	Uinta
2, 9, 10, 11, 16, 21, 28, 32, 33	T16N	R117W	Uinta
5, 8, 17, 18, 19	T15N	R117W	Uinta
24, 25, 26, 33, 34	T15N	R118W	Uinta
4, 5, 7, 8	T14N	R118W	Uinta
5, 6, 8, 12, 13, 16, 17, 24, 25, 26, 27, 28	T14N	R119W	Uinta
1, 2	T14N	R120W	Uinta
17, 18, 19, 20, 21, 22, 26, 27, 35	T15N	R120W	Uinta (Evanston)
25, 26	T15N	R121W	Uinta/Wyoming & Utah

6.0 RESOURCE VALUES AND ENVIRONMENTAL CONCERNS

6.1 CONSISTENCY WITH EXISTING LAND USE PLANNING

The cable will cross a predominantly checkerboard land-ownership pattern consisting of alternating federal, private and state sections and will be placed in an existing railroad corridor. The majority of land crossed is under private ownership (288 miles in Wyoming). There will be 96 miles of federal land (BLM) and 21 miles of state land crossed. Land uses along the project route include transportation (railroad and highway), agriculture (largely range), rural and urban residential and recreational. Industrial uses are common in major towns along the route. Installation of the cable will have no impact on existing land uses along the right-of-way. There are numerous rights-of-way which currently cross the railroad corridor, some of which are identified in a partial listing attached to the BLM Land Report for this project (Salt Lake District office). A complete list of this information is available through the lead agency office in Salt Lake City, Utah.

The cable will be in conformance with all pertinent BLM land use planning efforts and with the regulations in 43 CFR 2800. It will also be consistent with associated state, county and local government policies and zoning efforts.

6.2 RESOURCES

6.2.1 Mineral and Energy Resources

The cable will cross numerous pipeline and powerline rights-of-way within the Union Pacific Railroad corridor. US Telecom or its contractor will contact all right-of-way grant holders at least 2 days prior to excavation under or around existing utilities or pipelines. Placement and operation of the cable

will be compatible with all existing rights-of-way and will in no way conflict with current uses or effect the present mineral status within the project corridor.

6.2.2 Cultural and Paleontological Resources

US Telecom, Inc., or any person working on its behalf, will immediately bring any objects or resources of cultural and/or paleontological value (historic or prehistoric site or object) discovered as a result of operations to the attention of the Authorized Officer. US Telecom shall suspend all activities in the vicinity of such a discovery until notified to proceed by the Authorized Officer. The Authorized Officer will evaluate, or will have evaluated, such discoveries not later than five (5) working days after being notified, and will determine what action shall be taken with respect to such discoveries. The decision as to the appropriate measures to mitigate adverse effects to significant cultural resources will be made by the Authorized Officer after consulting with US Telecom. US Telecom shall be responsible for the cost of any investigation necessary for the evaluation, and for any mitigative measures.

Mariah Associates, Inc. of Laramie, Wyoming will be held on retainer by US Telecom throughout construction in Wyoming. Mariah will be available to investigate and assess any cultural resources discovered during construction, at the direction of the BLM.

Class III cultural resource surveys are being conducted on all portions of the right-of-way where the cable will be buried by trenching, rock-sawing or any means other than plowing. Significant cultural resource sites in those areas will be identified and the cable will be routed around them where ever possible.

If significant sites will be impacted (i.e., National Register eligible), appropriate mitigation measures will be developed in consultation with the Wyoming State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation. All construction operations will be carried out in accordance with recommendations made in the Class III report and will be approved by the BLM.

Amendments to this section of the Plan of Development will be made at a later date.

6.2.3 Soils

Soil disturbance within the right-of-way will be limited to the plow/trench line and heavy equipment tracks. Approximately 340 miles of the cable will be plowed (total disturbed area will be approximately 4 to 6 in. wide with the exception of isolated areas of large rocks or severely compacted soils), 45 miles will be trenched (maximum disturbed area will be approximately 3 ft. wide) and 20 miles will be opened by rock sawing (disturbed area will be 4 to 6 in. wide). Soil erosion resulting from plowing, trenching and rock sawing will be limited because of: a) the narrow width of actual disturbance, b) the gradual slopes and low moderate erosion potentials found along most of the railroad right-of-way and c) re-seeding of disturbed soils.

US Telecom's on-site representative will consult with the Authorized Officer on a site-specific basis prior to construction in areas with severe erosion potential to determine those measures necessary for the protection and rehabilitation of such soils. Erosion control measures for this project have been identified for the state of Wyoming and are discussed in Section 7.0.

6.2.4 Water Resources

The cable will be buried through 128 seasonal streams and ditches in Wyoming with a combined width of less than 1 mile (refer to Appendix D of the prepared Environmental Assessment). It will be attached to existing bridges at all permanent streams, requiring no work in the water (Table 3). The cable will cross numerous seasonal washes and drainage ditches, some of which may be flowing at the time of construction. All streams and ditches will be restored to their original contour and rip-rapped where necessary, thereby limiting long-term erosion. US Telecom's on-site representative will consult with the Authorized Officer on a case-by-case basis prior to working in any flowing seasonal stream or wash to determine if special precautions are needed to protect water quality and aquatic resources.

The cable will not be buried in any permanent streams or rivers that provide critical or otherwise sensitive fish or wildlife habitat (i.e., spawning areas).

6.2.5 Vegetation

The disturbance to and protection/mitigation of vegetation within the cable right-of-way are addressed in Section 2.3.14, Wetlands, and Section 7.0, Stabilization and Rehabilitation.

Consultation with the U.S. Fish and Wildlife Service (USFWS) has shown that no federally listed threatened or endangered species of plant is known to occur in the vicinity of the cable right-of-way.

6.2.6 Wildlife and Threatened and Endangered Species

Consultation with the U.S. Fish and Wildlife Service under Section 7 (c) of the Endangered Species Act revealed that the cable right-of-way will pass through

the historic ranges of the whooping crane, bald eagle, peregrine falcon and black-footed ferret in Wyoming. Searches of BLM and state records indicate that no construction activity will take place within 2 miles of known whooping crane, bald eagle or peregrine falcon nesting sites or critical habitats.

Several miles of the cable will cross active prairie dog towns potentially capable of supporting black-footed ferrets. US Telecom will avoid physical disturbance to prairie dog towns by locating and mapping all towns within the right-of-way and re-locating the cable, as needed, so that it is buried a minimum of 25 ft. from all active prairie dog burrows. (The BLM and USFWS have tentatively determined that maintaining a 25-ft. buffer around active burrows will limit disturbance to an acceptable level). If the cable cannot be routed so as to maintain the 25-ft. buffer around active burrows while remaining within the railroad right-of-way, US Telecom will consult with the USFWS and BLM to determine the need for black-footed ferret surveys on a case-by-case basis. US Telecom will have ferret surveys conducted in all prairie dog towns where burrows will be disturbed (i.e., construction within 25 ft.) and where the BLM and USFWS determine that there is a significant potential for adverse impacts to ferrets. The cable will not be buried in surveyed towns until it has been determined that black-footed ferrets are not actively utilizing the towns.

All prairie dog town mapping and ferret surveying will be conducted by Mariah Associates,Inc. A final mapping report will be provided to the BLM prior to construction.

All powerlines constructed to serve the cable will be designed to be safe for perching raptors in accordance with Suggested Practices for Raptor Protection on Powerlines, Raptor Research Foundation, 1981.

The cable will pass within 2 miles of known sage grouse strutting grounds and within 1 mile of nesting areas for golden eagles, ferruginous hawks and prairie falcons. Impacts to nesting birds are expected to be insignificant because construction crews will be moving at rates of up to 5 miles per day and will be spending less than one day in the vicinity of any one nest. They will also be working in an area that presently receives heavy human use (the railroad right-of-way) to which wildlife have become habituated. US Telecom's on-site representative will have a list of cable sections lying within 1 mile of raptor nest sites and other sensitive wildlife areas. He will notify the Authorized Officer if, for any reason, work crews will be spending more than one day in any of these areas. When the BLM identifies conflicts between construction activity and raptor nesting, the Authorized Officer will make recommendations for adjustments in the timing and/or amount of activity on a site-specific basis.

US Telecom and its contractors will comply with existing county, state and federal laws involving the protection and preservation of feral horses, feral burros, raptors and game and non-game wildlife species.

6.2.7 Visual Resources

Four of the 18 repeater stations to be installed along the right-of-way in Wyoming will be located on BLM-administered lands and, therefore, are subject to Visual Resource Management classification standards. The four stations are listed below along with the required colors they will be painted. All colors refer to Standard Environmental Colors as designated by the Rocky Mountain Five-State Interagency Committee.

Station Number	Mile Post	Exterior
RAWL WY 18	685.00	No color change (standard color)
CHKE WY 19	707.54	No color change (standard color)
MONE WY 21	752.20	Sand Beige (5Y 6/3)*
BXTR WY 23	797.00	Sand Beige (5Y 6/3)*

* These colors are identified on the BLM Munsell Soil Color Chart.

6.2.8 Socioeconomic Concerns

Socioeconomic impacts resulting from the cable will be negligible. Construction crews will be small and will have little or no effect on local services. The completed project will be unmanned and will go unnoticed by local communities.

7.0 STABILIZATION AND REHABILITATION

7.1 SOILS AND STABILIZATION

The following erosion control practices will be required where necessary as determined by the Authorized Officer in Wyoming: a) water barring, b) ground matting, c) seeding, d) mulching and e) rip-rapping. Water bars and erosion plugs will be utilized in any areas where the grade exceeds 2 to 4 percent for a distance of 200 ft., 4 to 6 percent for a distance of 100 ft. or 6 percent for a distance of 50 ft. Standard spacing for water bars will be 75 ft. unless otherwise agreed to and determined by field conditions. On slopes greater than 25 percent, US Telecom will use one of the above mentioned erosion control practices to further stabilize soils. The same standards will apply to spacing of erosion plugs. All areas of the right-of-way, except those where the cable is buried by a plow, will be re-seeded in a proper seedbed by broadcast or range drill methods suitable for trench widths. All disturbed areas will be recontoured to reflect the existing terrain. The use of heavy equipment on clayey soils will be limited to periods when the soil is dry or frozen and all disturbed streams and drainages will be restored to their original contours.

7.2 DISPOSAL OF TREES, STUMPS AND BRUSH CUT ON THE RIGHT-OF-WAY

The cable will be buried within the Union Pacific railroad right-of-way, which is generally kept clear of tall growing brush and trees. Therefore, there will be minimal cutting of woody vegetation during the burial operation. All shrubs and trees that are removed will be lopped and scattered on the right-of-way.

7.3 SEEDING SPECIFICATIONS

a) Seed Mixture

The following seed mixture has been established for all disturbed soils in the Rock Springs and Rawlins districts:

Seed Type

Thickspike Wheatgrass
Western Wheatgrass
Streambank Wheatgrass
Gardeners (Nuttall) Saltbrush
Crested Wheatgrass

b) Rate of Seed Application

Seed Type	Rate (lbs/acre/PLS) Rock Springs	Rawlins
Thickspike Wheatgrass	2	2
Western Wheatgrass	2	2
Streambank Wheatgrass	2	2
Gardeners (Nuttall) Saltbrush	2	2
Crested Wheatgrass	2	2

Actual rates of seed applications will depend on whether the seed is drilled or broadcast (broadcasting requires twice the normal seeding rate than drilling).

c) Method of Seed Application

Seed shall be applied by a drill equipped with a depth regulator. Planting depths will not be less than 1/4 in. nor exceed 1/2 in. Seed will be broadcast in areas where drilling cannot occur. In these cases, the area will be raked or chained to cover the seed. Seeding activities will occur by November 30, 1986 and will be repeated until a satisfactory stand has been established as determined by the Authorized Officer. Evaluation of growth will

not be made before completion of the first growing season after seeding occurs. The Authorized Officer will be notified seven (7) days prior to seeding in order to schedule seeding activity inspections.

d) Seeding Schedule

The right-of-way shall be restored as nearly as practical and as soon as possible to the original contour. Seeding will be done by a right-of-way clean-up crew that will follow the plowing operation by one week to one month in Wyoming and will be completed according to BLM revegetation policies.

e) Use of Fertilizer

The use of fertilizers has not been identified in conjunction with this project and will not be part of seeding applications unless required by the Authorized Officer.

8.0 OPERATION AND MAINTENANCE OF THE FACILITY

8.1 INSPECTION AND MAINTENANCE

The repeater stations will be visited weekly by US Telecom employees to inspect the internal equipment. The cable itself will not be visted unless a malfunction occurs. Maintenance will occur on an as-needed basis, and will involve either the repair or replacement of equipment within the repeater stations or the splicing of a break in the cable.

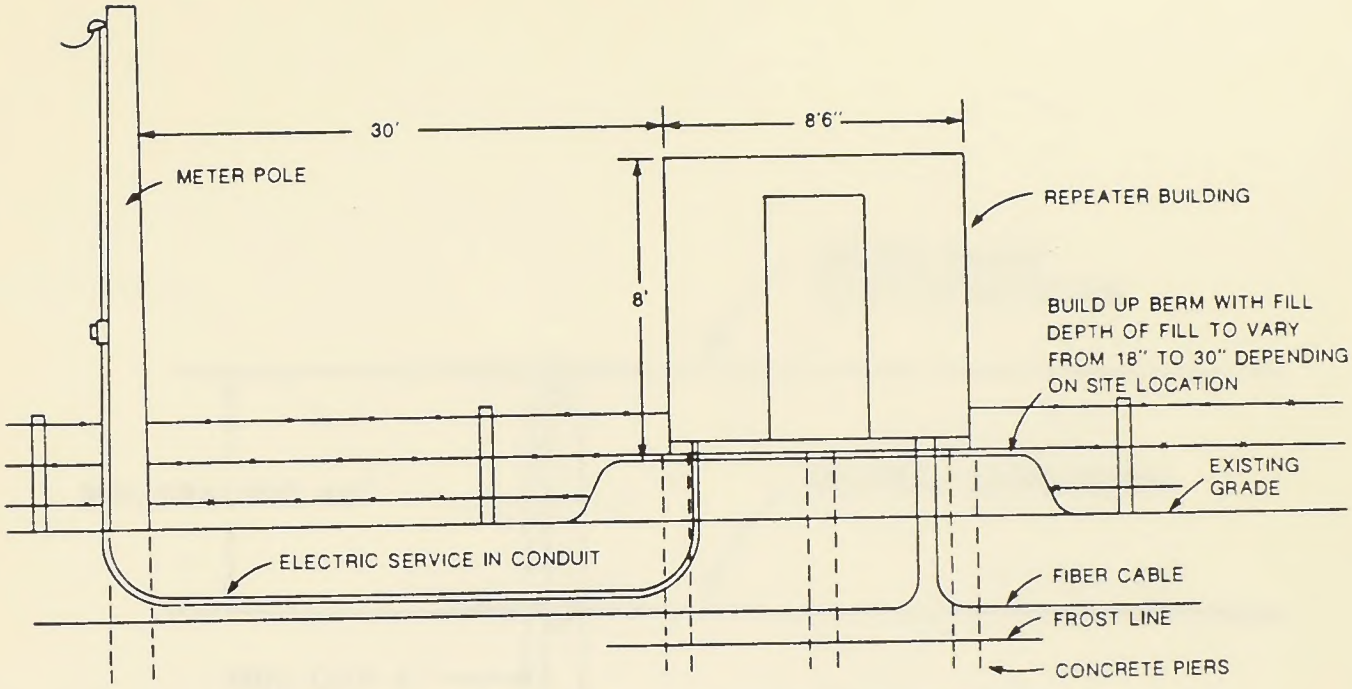
8.2 LONG-TERM ACCESS TO AND ALONG THE RIGHT-OF-WAY

All permanent access to the cable right-of-way will be gained along the railroad service roads and existing public roads. No new roads will be constructed or maintained specifically for long-term access.

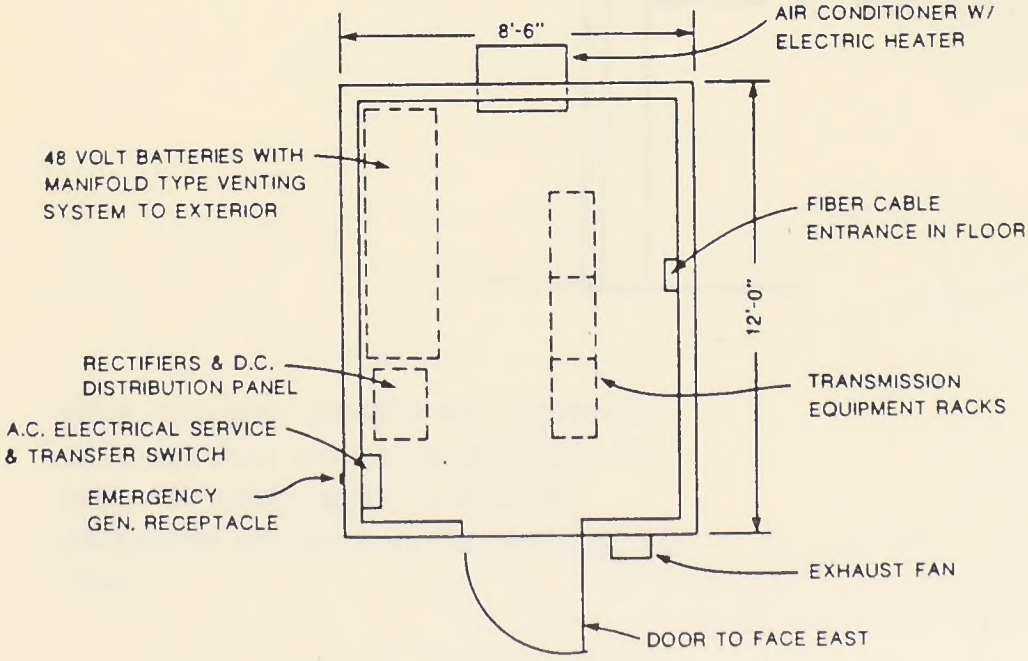
9.0 TERMINATION AND RESTORATION

The useful life of fiber optic cable is considered to be quite long, at least 50 years. There are presently no plans for termination of the right-of-way. Should the US Telecom system be retired at any time for any reason, the cable would be left in the ground. Repeater stations would be removed and their sites re-vegetated. Powerlines would also be removed at the discretion of local power companies.

10.0 DRAWINGS

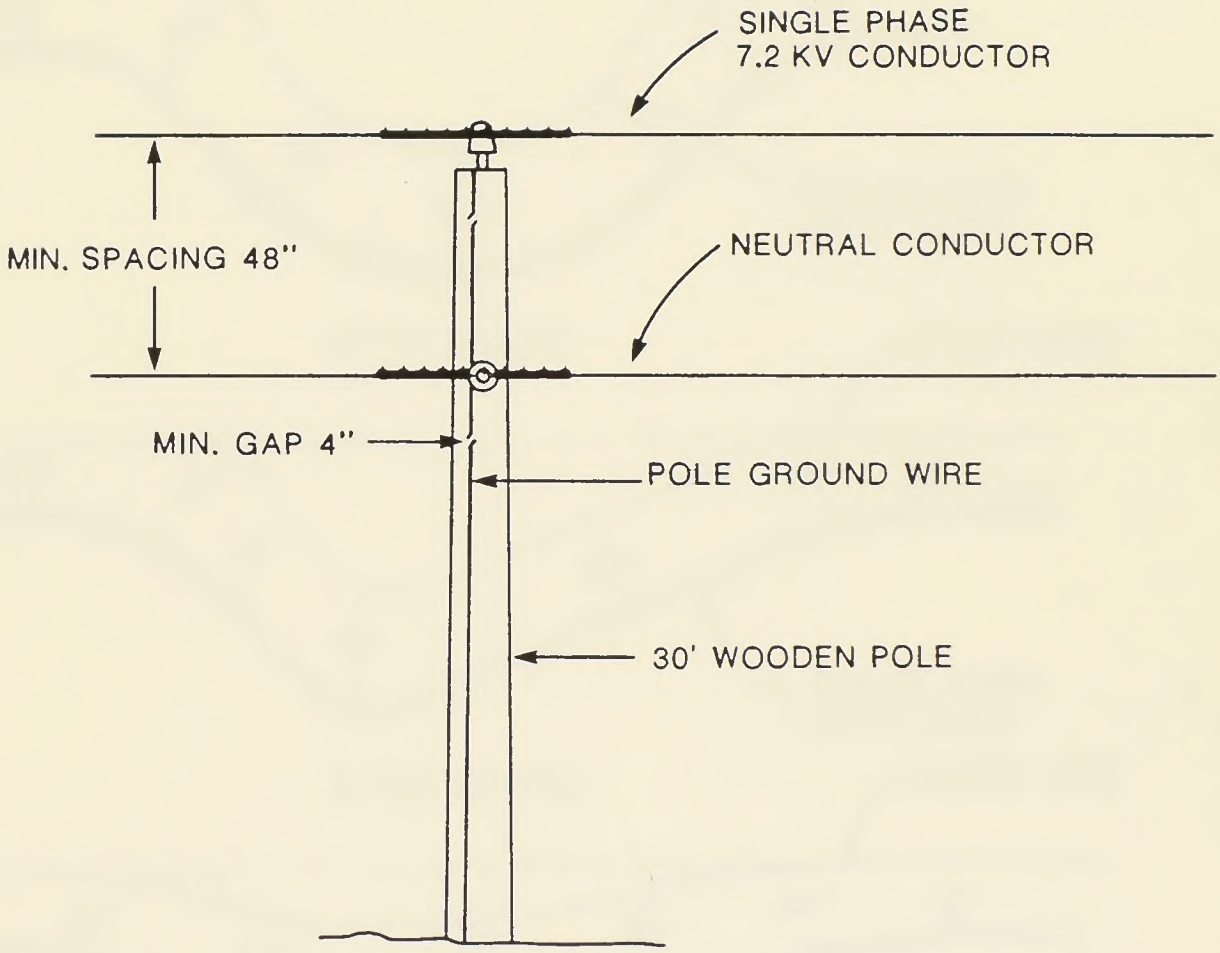


TYPICAL SITE PROFILE



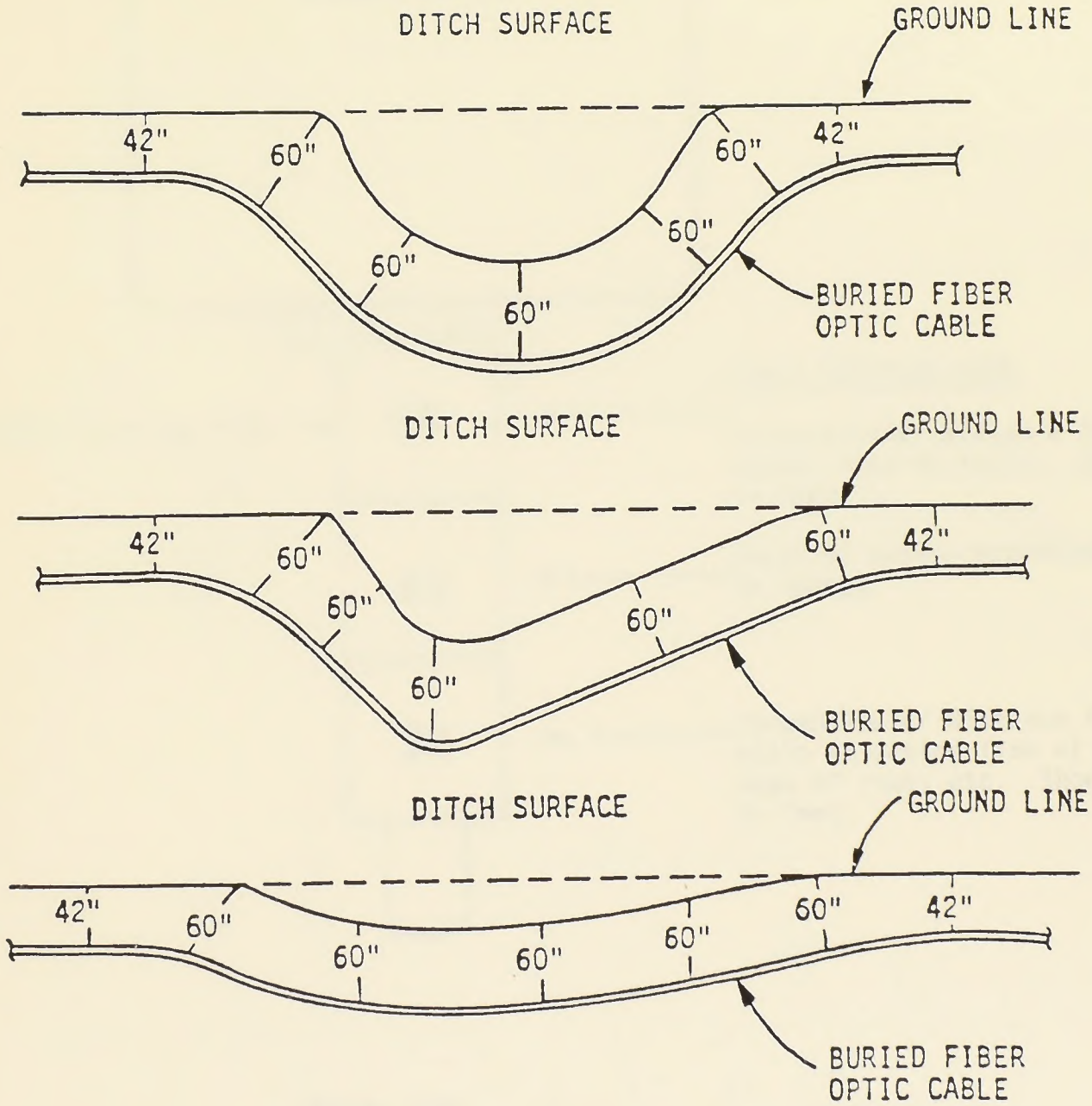
TYPICAL FLOOR PLAN

Figure 1. Typical repeater building.



Note: Insulator designs and conductor spacings may vary by local utility. All lines will meet raptor protection standards set forth in Olendorff et al., 1981.

Figure 2. Typical powerline construction.



NOTE: Buried cable shall be placed as shown above. The depth shall apply only at locations where the buried plant crosses the ditch, and shall not apply to buried plant installed parallel to and adjacent to the ditch.

Figure 3. Cross sections of typical stream and ditch crossings.

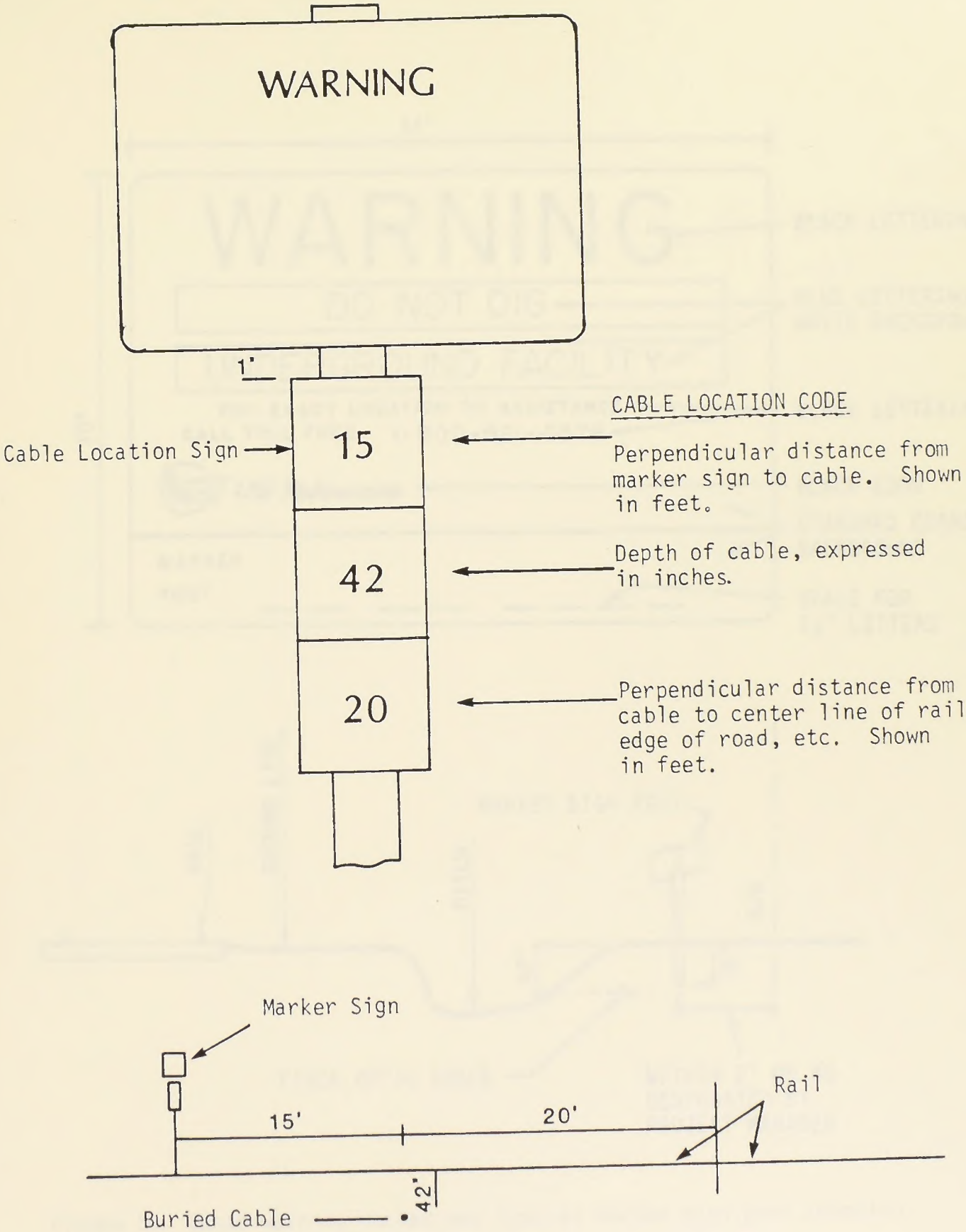


Figure 4. Cable location marker.

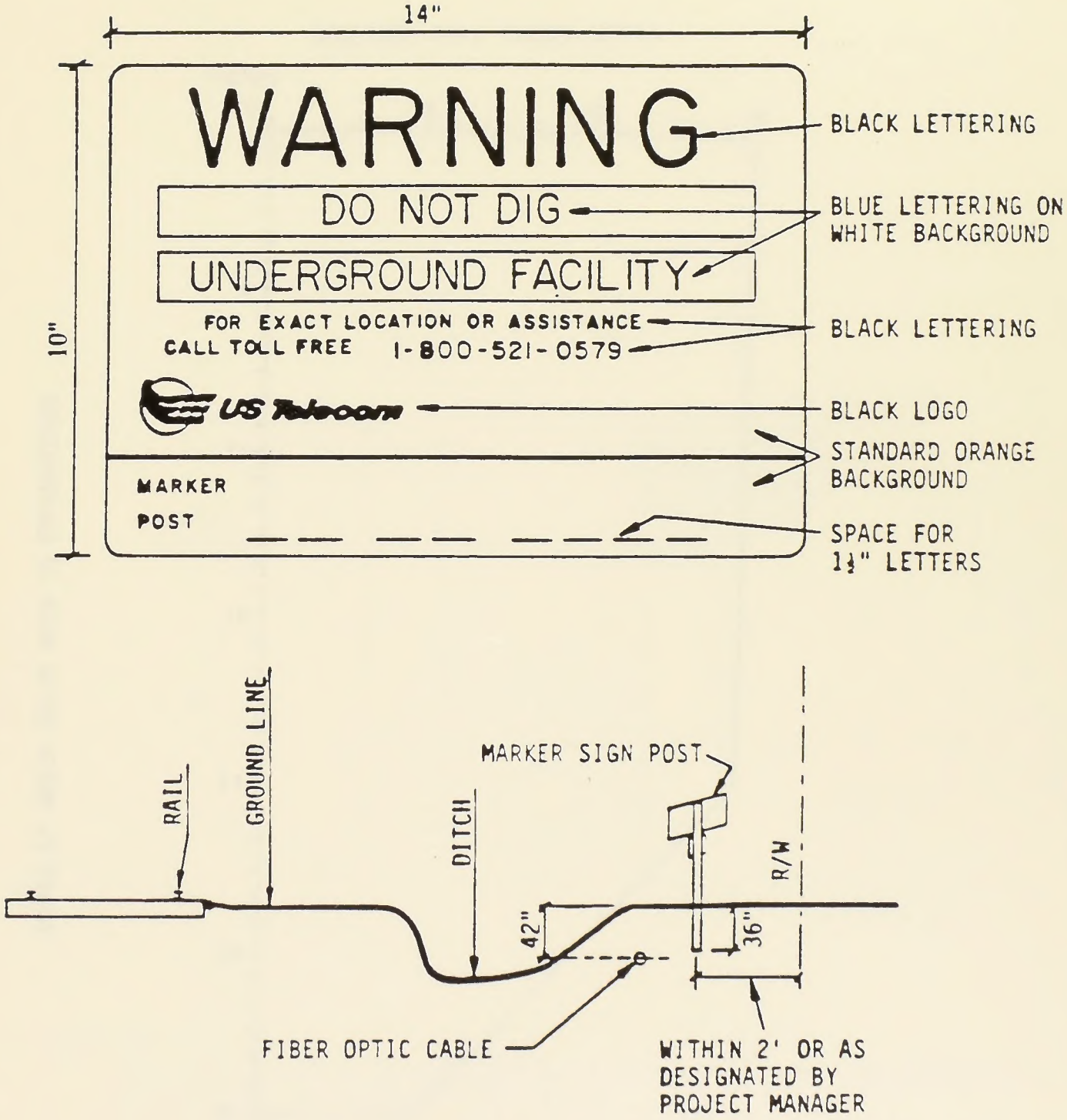


Figure 5. Cable warning marker and typical marker sign post location.

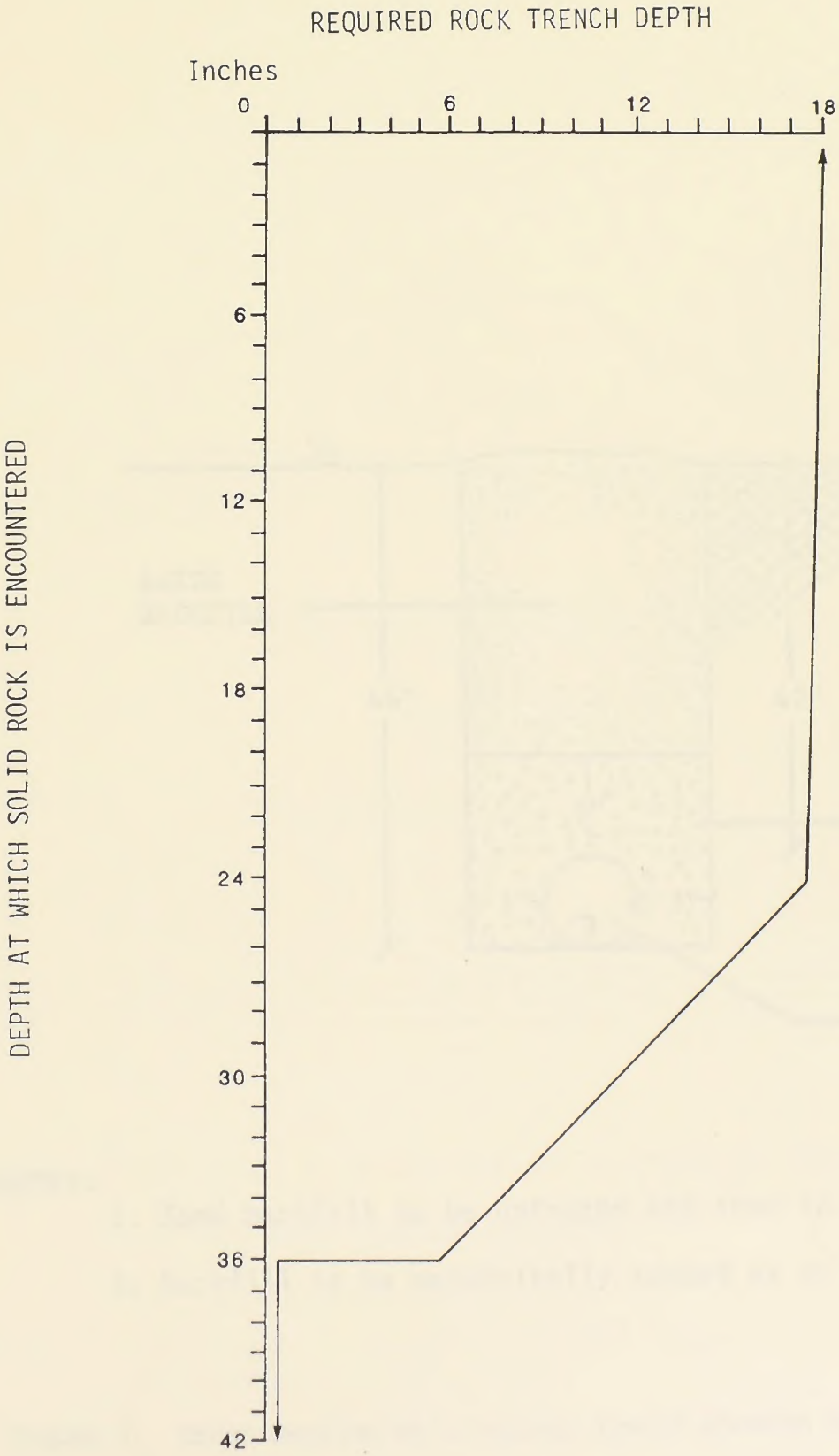
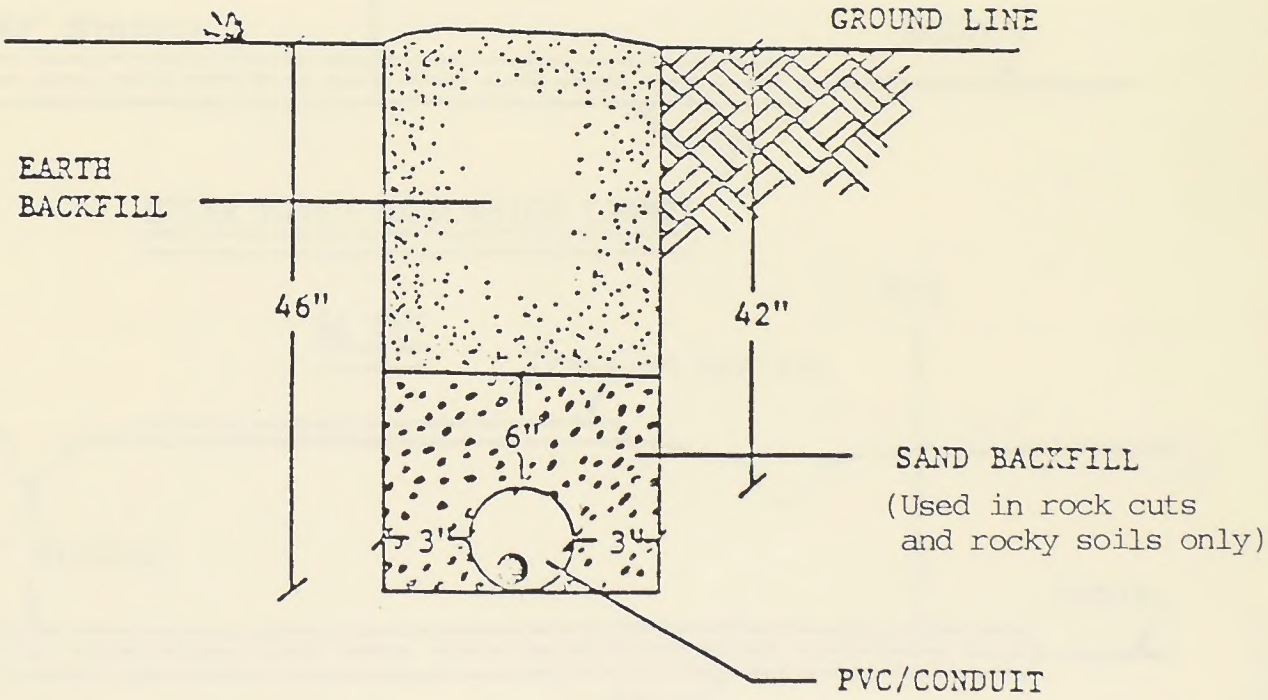


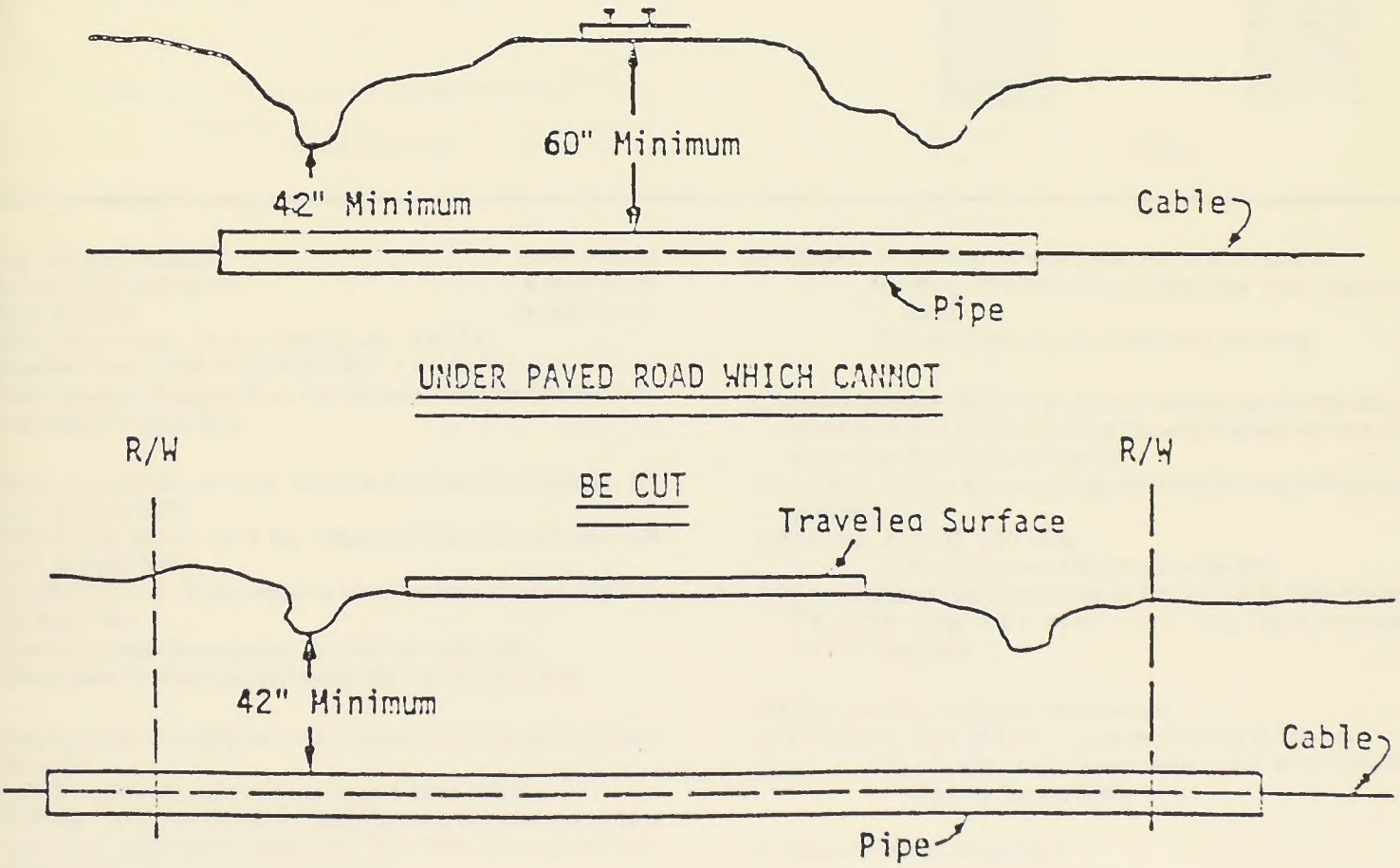
Figure 6. Guide for determining rock sawing at various soil depths.



NOTES:

1. Sand backfill to be unfrozen and free fo rocks or other debris.
2. Backfill to be mechanically tamped at no more than 6" lifts

Figure 7. Cross section of a typical trench showing backfill detail.

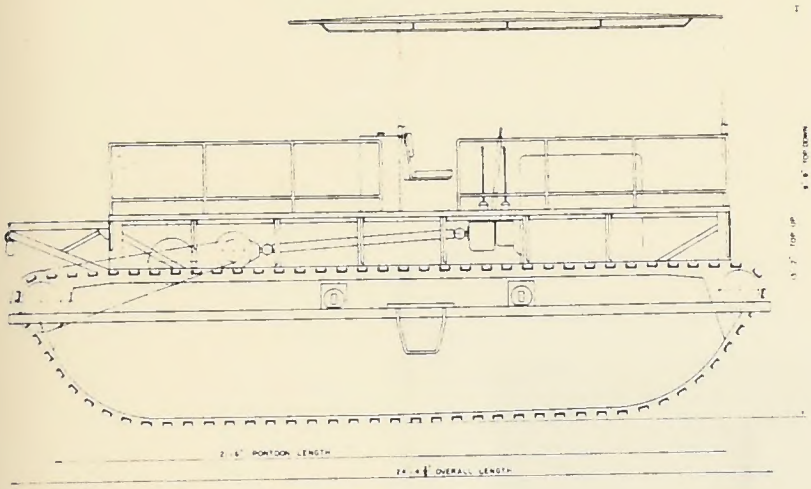


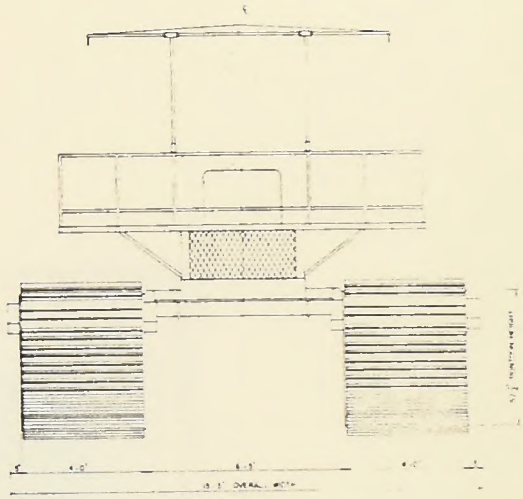
NOTES: Distance to be determined by railroad agreement.

Pipe size specified on drawings.

Figure 8. Longitudinal sections of typical cable burial beneath roads and railroads.

QUALITY MODEL: 104T-82
100% AMPHIBIOUS PERSONNEL/CARGO CARRIER





BASIC VEHICLE WEIGHT ..... 18,000 Pounds
LOAD (CARGO) CAPACITY ..... 6,000 Pounds
GROSS WEIGHT ..... 24,000 Pounds
SPEED: Diesel Power: Terrain (Hard Level) - 6 M.P.H.; Gasoline Power - 8 M.P.H.; IN WATER - 1 to 3 M.P.H.
OPTION: Hydraulic Propeller Drive can Increase Water Speed to 5 M.P.H.
GRADEABILITY: Up to 60%

ENGINE: Ford 300 Cu. In. 6 Cyl. Industrial Gasoline Water-Cooled, 124 H.P. @ 3600 RPM.
OPTIONS: Ford 380 Cu. In. 6 Cyl. Industrial Diesel Water-Cooled, 124 H.P. @ 2400 RPM.
FORD 370 Cu. In. 8 Cyl. Industrial Gasoline Water-Cooled, 176 H.P. @ 3600 RPM.
GM-453 Diesel Water-Cooled, 124 H.P. @ 2400 RPM
Deutz Model 913 Air-Cooled Diesel, 160 H.P. @ 2800 RPM.

TRANSMISSION: Borg-Warner T-18, 4 Speeds Forward and 4 Speeds Reverse
OPTIONAL: 100% Hydrostatic Track Drive & Winch Drive
STEERING: "SKID" STEERING - Accomplished by Disengaging One Twin Disc Clutch and Braking One Track While Allowing the other Track to Rotate in the Required Direction.

PONTOONS: 21'6" Flotation Length × 4'4" High × 4' Wide, 3/16 SA572GR50 Bottom. 12 Ga. Top and Sides.
All Steel Welded Construction.
OPTIONAL: 24'6" Flotation Length (Increases Cargo Capacity to 10,000 lbs.)
Patented C.C. Recess Track
EXTERIOR FINISH: All Exposed Metal Sandblasted and Sprayed with Inorganic Zinc, Painted with one Coat of Primer and two Coats of Enamel Paint. Interior - Primed.

TRACK CHAIN: 4" Pitch Riveted Heavy Duty Special Engineering Class Chain Designed Specifically for Marsh Buggy Operation.
TRACK: Two strands of Heavy Duty Track Chain Per Pontoon, Bolted to 4" Aluminum Channel Cleats (¼"×4"×46½")-6061 T6 Specifications

OPTIONAL: A) Extreme Service Cleats (⅜" × 4" × 46½")
B) Heavy Duty Track Support System (4" Wear Disc on Each Cleat)
C) Track Oiling System (Operator Controlled)

CHASSIS: All Steel I-Beam and Channel. Welded Construction with Angle Iron Frame and Expanded Metal Decking Painted with one Coat of Primer and Two Coats of Enamel.
DECK: 7'10" Wide × 20' Long, Expanded Metal Surface with surrounding Handrails
OPTIONAL: A) 11'10"×20' Long
B) 2'×2'×4' Deck Mounted Storage Box
TOP: Vinyl Coated Fabric Supported by Folding Tubular Steel Framework 7'2"×13'4" Long. A 9'2" Wide × 13'4" Long Top is Provided with 11'10" Wide Deck.

WINCH: 15,000 Lb. Capacity (Mechanical)
OPTIONAL: A) Up to 29,000 lb. capacity (Hoisting or Towing)
B) "Quality" High Speed Geophysical Winch (20,000 lb. capacity Towing Only)

OTHER OPTIONS AVAILABLE:

1. A-Frame with Snatch Block
2. Backhoe: Can be Fitted with a Davis Model SD-100 Hydraulic Backhoe with a 24" Wide Bucket.

SHIPPING DIMENSIONS: For Complete Assembled Vehicle. (Top Folded Down) 15'-3" Wide × 24' Long - 10' High

INDIVIDUAL COMPONENT WEIGHTS AND DIMENSIONS:
STANDARD VEHICLE

	WEIGHT	LENGTH	WIDTH	HEIGHT
1) Pontoons (Two)	5,750lbs	24 5	5	5
2) Center Chassis with Accessories	6,500lbs	20	7 10	7 1

Figure 9. 100 Percent Amphibious Personnel/Cargo Carrier

Figure 10. Ryans Plow being lowered into position for plowing through a riverbed. The plow moves on four wheels and cable placement is acheived by winching the plow along a predetermined cable path.

APPENDIX A

APPENDIX A

GENERAL SAFETY REQUIREMENTS FOR US TELECOM EMPLOYEES AND AGENTS

Safety rules cannot be all inclusive. Workers must refrain from unsafe and improper practices including both the violation of written rules and regulations and the violation of unwritten rules of common sense.

Contractor Note: Work in the proximity of a railroad track is extremely dangerous. US Telecom will rigorously enforce these safety requirements, and any other requirements for a safety deemed necessary by the Railroad or any other agency. Should violations by the Contractor or his agents force the shutting down of Work in progress, all costs resulting from said stoppage shall be for Contractor's sole obligation and at Contractor's sole expense.

1. Should any employee or agent of US Telecom, Inc. suffer a personal injury while on owner's property, details of that injury must be submitted promptly to the Director, Outside Plant Engineering and Construction or Project Engineer. Federal regulations require the railroad to report all such incidents that occur on owner's property. A copy of the report is to be submitted to US Telecom, Inc., Director Contract Administration, 901 E. 104th St., Kansas City, MO 64131

2. Workers must not use, or be under the influence, of intoxicants, drugs, or any substance which may impair senses of alertness, while on US Telecom's property.

3. Scuffling, horseplay, practical jokes, and all conduct of a similar nature, while on US Telecom's property is prohibited.

4. Profane, indecent, or abusive language, by workpersons while on owner's property, is prohibited.

5. Good housekeeping is of the utmost importance in the prevention of accidents and fires. Workers must keep that part of the property that is their responsibility in a neat and orderly condition. Clean-up will be conducted on a daily basis.

6. Throwing waste, garbage, bottles, refuse, or other such materials on railroad property, or disposing of such at other than designated locations, is prohibited. Each Contractor will provide several refuse containers at the work site, which will be dumped on a daily basis.

7. In all cases, established routes in and about the property must be used.

8. Workers are warned that trains, locomotives, or cars may be expected at any time, on any track, in either direction, and that they must watch for, and keep clear, of such movements. All employees will become familiar with and be capable of recognizing railroad equipment (switchboxes, lights) adjacent to the tracks.

9. Walking, stepping or standing on rail, frog, switch, interlocking machinery or connections, or sitting on any part of track structure except in performance of duty is prohibited. (Note: The term "track structure" means the space between the rails, and within three feet outside the rails, unless otherwise specified.)

10. Workers must not cross tracks by going underneath cars.

11. Workers must not cross tracks by crossing over between cars that are coupled together.

12. Workers must keep a safe distance from passing trains locomotives, or equipment, to avoid injury from falling objects, or projections on the equipment.

13. Objects which constitute a slipping or tripping hazard must not be left in walking areas.

14. Workers must not wear colors of green, orange, red or yellow while working on or near the railroad right-of-way. Workers must not wear or use anything which impairs vision or hearing. Individual radios such as Sony Walkmans or the like are prohibited.

15. Whenever it is necessary to create a hazardous condition in performing work on, or in the vicinity, of a track, proper protection must be afforded in accordance with a safety plan submitted to and approved by the US Telecom project engineer prior to creating the hazardous condition, as well as taking any other precautions that may be necessary to protect the condition.

16. Workers must take extra precaution to be on the look-out for approaching trains, especially when working in multiple track territory, when view of vision is limited, or when noisy equipment is in use. When practical, a warning type whistle or signal should be used by designated person to warn forces of approaching trains or equipment. Portable air horns will be used.

17. All power line wires must be considered dangerous, and of high voltage, unless informed to the contrary by proper authority.

18. Machines will be operated across tracks only at established grade crossings. If necessary to do so at any other location, it may be done only with permission and with the supervision of the Railroad Chief Engineer or his representative on site.

19. Machines must be worked so as to clear tracks unless railroad personnel are protecting the operation, and must be stopped in the clear when trains are approaching, if the work is being done near the clearance point to the track, unless railroad personnel are protecting the operation.

20. Machines must not be left unattended with the engine running, if it can be avoided. If a machine is left with the engine running, it must be neutral gear, with brakes set, and if equipped with blade, pan or bucket, it must be lowered to the ground.

21. All machinery and equipment left on right-of-way unattended must be left inoperable, and secured against movement.

22. When leaving work site areas at night and over weekends, the areas must be left in a condition that will ensure that railroad employees that might be working in the area are protected from all hazards.

23. No machinery or equipment can be stored, or left temporarily, near a highway grade crossing in such a manner as to interfere with the sight distances of persons approaching that crossing. Prior to beginning work Contractors, with concurrence of the Project Manager, will establish a set storage area.

24. Some rails are conductors of electrical current, and are integral parts of the railroad's operating system. Devices must not be laid across rails that could shunt this electrical current. No hand or portable tools will be left on the rails at anytime. Use a wooden lath to provide separation when making measurements adjacent to the tracks.

25. Cutting or knocking down trees, or moving rocks and other materials, that might fall on the track structure, or on communications or power lines, is prohibited unless with the approval and supervision of the Railroad Chief Engineer or his representative. All trees will be removed in such a manner as to fall away from tracks, whenever possible.

26. Workers must not create and leave any condition at the work site that would interfere with water drainage.

27. Workers must not make any move toward an approaching train with machinery that would cause the engineer to believe that the track was going to be fouled.

28. Safeguards and safety signs must be kept in place, and in good condition. It is the responsibility of the Contractor to provide same.

29. Workers must not take refuge from rain, heat, etc., under cars or other rail equipment.

30. Workers must not attempt to catch onto, or ride, moving trains or other rail equipment even though it is moving slowly.

31. Upon entering the work site, hard hats and safety shoes are required. Tennis shoes are not permitted. Other appropriate safety equipment (glasses, goggles, gloves, face shields) must be worn when OSHA or other applicable regulations apply.

32. When work is being done in tunnels, under railroad personnel supervision, workers must be familiar with the use and location of manholes, and occupy them if a train approaches.

33. In cases of emergency, it may be necessary for US Telecom, Inc. employees or its agents to flag and stop approaching trains. Flagging equipment should consist of red fuses and/or red flags.

34. When emergency flagging is necessary, workers should protect against trains moving in both directions.

35. When required to perform emergency flagging, workers must understand that a great distance is required in which to stop a moving train. The flagperson must be at least 1.5 miles from the point being protected in order to provide minimum distance for the engineer to stop the train. A stop signal is given by swinging the lighted fusee or red flag at right angle to the track, but the engineer will recognize the stop signal if given violently in any manner from a point near the track. Workers, when giving a stop signal, must not stand on or within fouling distance of the track, as normally the engineer will not have the required stopping distance to stop short of the point where the signal is being given.

36. When an emergency exists, the Railroad Chief Engineer or his representative on site must be notified immediately. Each person in charge of a work party must receive instruction from the Railroad Chief Engineer or his representative concerning the emergency use.

37. Each person in charge of a work party must be familiar with the Mile Post location of the area in which work is being performed so that, in cases of emergencies, the exact location may be given to the railroad personnel.

38. Prior to starting work, each crew will have available on site a list of emergency numbers (ambulance, police) to contact when necessary.

39. Each crew will possess and maintain an OSHA approved first-aid kit. (36 Unit minimum, with snake bite kit mandatory.)

40. Workers are not permitted within railroad buildings (offices, stations) unless they are on official business relating to the project.

41. Contractor will work daylight hours only.

42. Contact the US Telecom Field Representative if any hazard is noticed on passing trains. Note the time and direction of the train.

43. On double main tracks: walk facing traffic; clear both tracks when a train approaches, keeping a minimum of 15 feet from the tracks.

44. Do not wave violently, this is a distress signal.

45. Possession of firearms on the right-of-way is absolutely forbidden.

IN ALL CASES OF DOUBT OR UNCERTAINTY, THE SAFEST COURSE MUST BE TAKEN.

PERSONAL PROTECTIVE EQUIPMENT

1. Long pants, shirts and full leather shoes must be worn at all times. Shorts, cutoff shirts and tennis shoes are not permitted. (OSHA 1926.28)

2. Safety glasses and goggles must be available for each worker and worn under the following circumstances:

a. When working in close proximity to a trenching machine.

b. When using any air powered or hand held impact tool.

c. Drilling operations.

d. All other operations hazardous to the eyes. (OSHA 1926.102)

3. Workers wearing prescription glasses must wear goggles when performing any of the aforementioned duties, unless prescriptions glasses are A.N.S.I.O.S.H. approved safety glasses.

4. Hard hats will be worn at all times when a worker enters the site. All hard hats will have the name of the worker's company on the front of the hat. The worker's name will appear on the back of the hat. Each company will provide hard hats of a uniform color, for security reasons, to each worker. Foreperson or Management personnel will wear white hats with the word "Foreperson" appearing on the hard hat. (OSHA 1926.100)

5. Safety gloves will be on site, in sufficient numbers, and worn by workers when needed. (OSHA 1926.28)

6. Disposable respirators will be available to and worn by workers whenever conditions (dust storms, pungent odors) exist that warrant their use. (OSHA 1926.103)

7. While working over water, each worker must be provided with and must wear an approved life jacket. (OSHA 1926.108)

8. Workers will be provided with and wear hearing protection where the average noise level exceeds 90 decibels (db) for an 8 hour period. Persons working air tools, compressors or the like enter this category. (OSHA 1926.101)

9. Drinking water will be provided for all workers. (OSHA 1910.141)

FIRE PROTECTION (OSHA 1926.24)

1. Each Contractor is required to have, on site, a sufficient number of fire extinguishers. Each worker is to be trained by the employer in their use.

2. All vehicles and motorized equipment is to be equipped with a fire extinguisher.

3. Flammable liquids are to be stored in approved containers and away from work operations.

4. A list of the local fire department phone numbers is to be kept on site and readily available in the event a fire cannot be handled by the employees.

5. A written report of all fire incidents will be completed and forwarded to US Telecom, Inc., Director-Contract Administration, 901 E. 104th, Kansas City, MO 64131.

ON OR ABOUT TRACKS

1. Foreman in charge of gangs is responsible for the safety of the workers.

2. Workers must be warned of approaching trains. Extra protection must be taken while working in multiple track territory, when view or vision is limited, or when motorized equipment is in use.

3. Warning-type whistle or signal must be used to warn workers of approaching trains.

4. Whenever it is necessary to create a hazardous condition in performing work on or in the vicinity of the tracks, proper protection of railroad property, personnel and construction personnel must be afforded.

5. Workers must avoid contact between hands and face, arms or other parts of the body when handling creosoted materials.

6. Tools or work materials must not be left in close proximity to tracks.

7. Railroad vehicles have an unquestioned right-of-way in all circumstances relating to work on or about the track area.

8. Construction vehicles will not be left unattended in close proximity to the tracks or in such a manner as to impair the vision of workers working near the tracks.

9. Walking on, or even being on the tracks except in the direct line of duty is prohibited. If it is necessary to cross railroad tracks, look both ways, and remain at least 10' from stationary vehicles that may impair an engineer's vision.

10. Sitting, walking, stepping, or resting foot on rails, frogs or switches is prohibited.

11. Workers working in tunnels will leave the tunnel when trains approach or occupy manholes, if built into tunnel floor.

12. Construction workers are prohibited from tampering with switches, electrical boxes, frogs or greaseboxes unless it is necessary for work operation and only in the presence of an authorized railroad worker.

COMPRESSED GAS AND COMPRESSED AIR EQUIPMENT (OSHA 1910.166)

1. Each employer shall determine that compressed gas cylinders are in safe operating order.

2. Storage of gas and air bottles, together when not in use, is prohibited.

3. Gas and air bottles, when in use, will be placed on a cart and chained.

4. All cylinders shall be checked for rust, corrosion and cracks that affect the operating integrity of the cylinders, on a daily basis.

5. Any cylinder will be rejected and taken out of use when dents in the cylinders are greater than 1/4" in depth.

6. Valve leaks will be cause for immediate rejection of cylinders.

7. All equipment shall be equipped with an indicating pressure gauge. No valve of any type shall be placed between the air receiver and its gauges.

8. Gauges and valves will be mounted in such a manner so that they cannot readily be rendered inoperable.

MANHOLES, SEWERS, EXCAVATION AND TRENCHING (OSHA 1926.651)

1. Sides of excavations must be shored or laid back to a stable slope when more than 4 feet in depth.

2. Trenching less than 4 feet in depth shall be laid back when inspection of the ground indicates unstable soil such as sand or silt.

3. Slopes shall not be less than a 1' to 1/2' ratio.

4. Ladders for ingress and egress will be placed within 50' of each other when depth of a trench exceeds 4'.

5. Excess soil will be placed a minimum of 3' from the trench.

6. All excavations, no matter the depth, will be shored where there is any danger to the track structure.

7. No excavation will be left unprotected overnight.

8. Holes or trenches about the track must be covered, guarded or protected when not being worked on.

9. Excavations, trenches or pits adjacent to public roads will be covered and denoted by flashing highway barriers when not in use.

10. Barrier physical protection shall be provided at all excavations not in use. All excavations will be backfilled as soon as possible.

11. Before excavating it must be ascertained if there are underground electric wires, cables, pipe lines, in the vicinity.

12. If obstructions are encountered that do not appear on drawings, the railroad crew chief must be notified before continuing excavation operations.

13. Jumping over pits is prohibited.

14. Excavations will be inspected after each rainstorm for protection against slides or collapse. If either danger is present, shoring or sloping will be required.

15. Diversion ditches, dikes or pumps shall be used to prevent surface water from entering an excavation. Water will not be permitted to accumulate in an excavation.

16. Entering a sewer or manhole without an employee at the top to render assistance, if needed is prohibited.

17. If a question arises concerning oxygen levels in a sewer line or manhole pit, a test, using N.I.O.S.H. approved equipment must be conducted and the results documented before resuming work. If oxygen level is below 17 percent, self contained breathing apparatus or other oxygen supply equipment must be utilized.

18. Smoking in manhole or sewer line is prohibited.

19. Operations of an internal combustion engine in a manhole is prohibited.

CUTTING OR TRIMMING TREES

1. When trimming trees, ladders will be used when practicable.

2. If climbers are necessary, extreme care and necessary safety precautions must be exercised.

3. When cutting down trees, sufficient rope must be used to fell the tree in the desired direction.

4. Care must be exercised to prevent coming in contact with wires running through trees.

5. Precautions must be taken when trimming a tree, either from a ladder or when using climbers, to see that a cut off limb does not kick back or drop so as to do injury to the operator or helpers. It is best to "safety off" as high as practical above the work. Never "safety off" below a heavy limb that is being cut.

6. Do not throw any object to or from workers in trees. Hand lines will be used to transport all tools.

7. All felled trees or limbs will be clearly and properly disposed of immediately.

VEHICLES

1. All vehicles will be clearly identified as to whom they belong to.

2. Unless loading or unloading, trucks will be as far from the track right-of-way as possible.

3. Trucks and equipment will be parked in such a manner so as not to impair vision from public roads or track right-of-way.

4. The speed limit on the right-of-way will not exceed 5 miles per hour.

5. Only licensed drivers will operate trucks or equipment along the right-of-way.

6. All vehicle accidents resulting in damage to railroad property will be reported immediately to the railroad chief.

SIGNAL RULES

A. Time Tables

1. It is the responsibility of each foreperson to obtain from a railroad personnel, a train schedule for the day.

2. Not more than two times are given for a train at any station; where one is given, it is the leaving time; where two, they are the arriving and leaving times.

3. The following letters in the time tables indicate:

L - Leave

A - Arrive

S - Regular stop

F - Flag stop

T - Train order officer

P - Siding

PN - Northward siding

PS - Southward siding

PE - Eastward siding

PW - Westward siding

CP - Center siding

Sig. S - Signaled sidings of a capacity in excess of 250 cars

X - Railroad crossing

Y - Wye track

O - Track scales

N - North

S - South

E - East

W - West

HAND SIGNALS

Fusees must not be placed where fire may be communicated to platforms, bridges or buildings. Special attention must be given in areas where there are trees, brush or grass along the right of way.

HAND SIGNALS FOR TRAIN AND ENGINE MOVEMENTS (with hand, flag or light)

Manner of Using	Indication
(a) Swung across the track	Stop
(b) Held horizontally at arm's length when train is moving.	Reduce speed
(c) Raised and lowered vertically.	Proceed
(d) Swung vertically in a circle at right angle to the track.	Back
(e) Swung horizontally above the head when the train is standing	Apply air brakes
(f) Held at arm's length above the head when the train is standing.	Release air brakes
(g) Any object waved violently by any one on or near the track.	Stop

---

Signals must be given from a point where they may be plainly seen and in such a way that they cannot be misunderstood. If there is doubt as to the meaning of a signal, or for whom it is intended, it must be regarded as a stop signal and not further acted upon until fully understood. Except as provided by radio rules, when backing or shoving a train, engine or cars, the disappearance from view of employee giving signals, or light by which signals are given, must be construed as a stop signal. When practicable, hand signals will be used in lieu of radio.

APPENDIX B

APPENDIX B

ADDITIONAL PERMITS REQUIRED FOR THE CONSTRUCTION OF THE US TELECOM FIBER OPTIC CABLE IN WYOMING

A. CITY PERMITS

1. City of Laramie - Building permits plus minor activity permits for Hermosa, Howell and Lookout repeaters.

2. City of Green River - Building permit for Green River, Wyoming - corner of Blake and 4th.

3. City of Rawlins - Permit to construct in public places for 70' bore under Colorado Street.

B. COUNTY PERMITS

1. Sweetwater County, Wyoming - Zoning permits for Cherokee, Green River, Baxter, Point of Rocks, Monell, Westvaco, Frewin repeaters. Building permits for same.

2. Uinta County, Wyoming - Use permits for Hampton, Bridger and Alta repeaters.

3. Carbon County, Wyoming - Special use permits for Medicine Bow, Hanna, Walcott, and Rawlins repeater stations.

4. Sweetwater County, Wyoming - License for road crossings for Bittercreek, Table Rock, Wamsutter, Point of Rocks, Salt Wells Ranch and Granger and for repeater stations.

5. Laramie County - License for road crossing at Dale Creek, Hermosa, Forcelle, Howe Lane, and Bosler and for repeater stations.

6. Laramie County - Road crossings for old Hwy 30 and Hwy 87.

7. Albany County - Land use permit - Minor activity permits for each repeater station in county.

C. STATE PERMITS

1. Wyoming State Highway Department - Rock Springs - Highway crossing permits for Hwy 30, 4L2, and 374.

D. RAILROAD PERMITS

1. Union Pacific/Western Pacific Railroad - License agreement and survey agreement.

APPENDIX C

(Construction Drawings)